ST. JOHN'S UNIVERSITY

# STUDENT RESEARCH CONFERENCE

APRIL 9–10, 2024

ST. JOHN'S UNIVERSITY

# Student Research Conference

## April 9–10, 2024

### Tuesday, April 9

10 a.m.–2 p.m.
Taffner Field House
Student poster sessions featuring all scholarly disciplines

### Wednesday, April 10

10 a.m.–3 p.m.
D'Angelo Center Ballroom
Undergraduate and graduate student research presentations

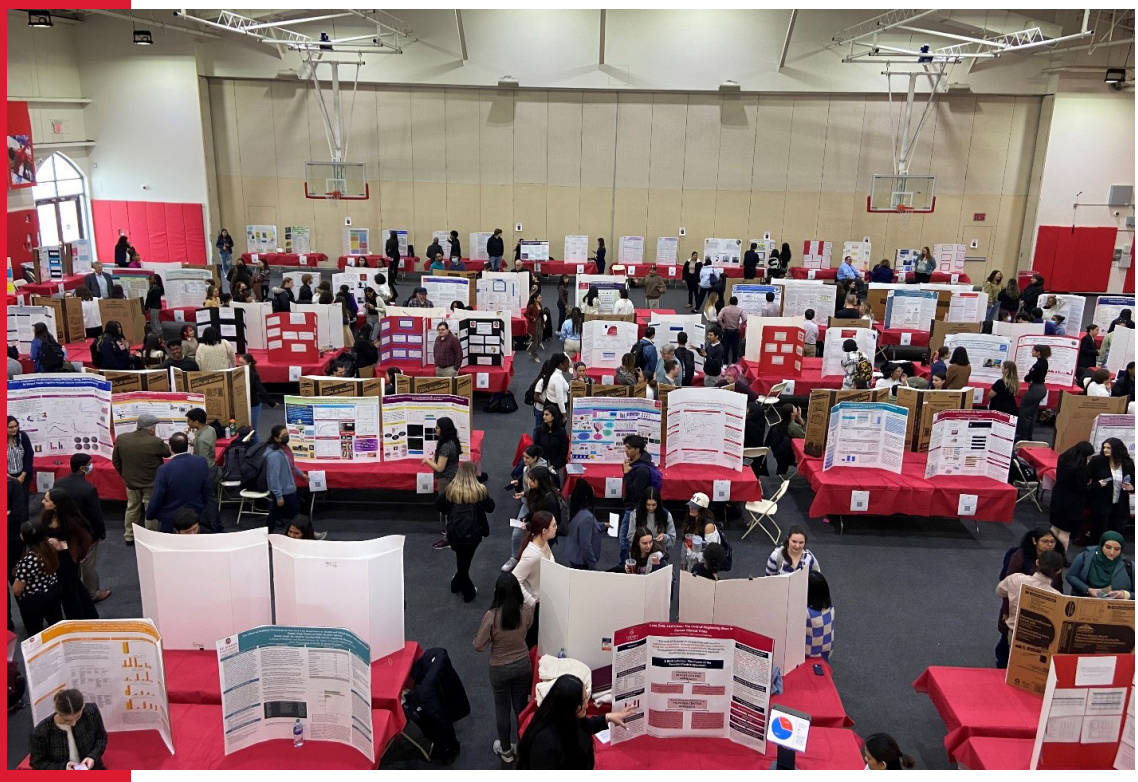
5–6:30 p.m.
D'Angelo Center Ballroom
Grants Reception and Award Ceremony

35th Annual *Grants* Reception

ST. JOHN'S UNIVERSITY

# Student Research Conference

## Poster Presentations



**Poster Number:** 1

**Title:** The effect of knocking-down CYCLOIDEA on RADIALIS and DIVARICATA gene expression

**Abstract:** Evidence across angiosperms (flowering plants) indicate the transcription factors RADIALIS (RAD), DIVARICATA (DIV) and CYCLOIDEA (CYC) genes play a major role in regulating floral symmetry and morphology. The current pathway model for floral development in snapdragon indicates that the CYC genes control the activation of RAD which results in the inhibition of DIV. Studies across angiosperms (flowering plants) suggest that the patterning of bilaterally symmetrical flowers are regulated by the CYC-like genes. Fedia (Caprifoliacea) is a bilaterally symmetrical flower, which after two major duplication events, contains two copies of both CYC2 and CYC3. We have previously shown that each of these genes, FgCYC2A, FgCYC2B, FgCYC3A, and FgCYC3B affect floral symmetry in this species, with downregulated CYC-like gene expression resulting in a change to a more radial-like flower. Using these gene knockdowns, we will investigate the effects the downregulation of each of the four CYC paralogs has on FgRAD2 and FgDIV1 genes in Fedia graciliflora.

**Keywords:** Evolutionary development biology, molecular biology, botany

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**Poster Number:** 2

**Title:** Mental Health Symptoms Among Clients Starting Therapy during Covid

**Abstract:** The Covid-19 pandemic was impactful during 2020. Some have experienced mental health symptoms during lockdown. Using research data from a community mental health center we examined results from patients who started psychotherapy before and after the pandemic. As a result we suspect that symptoms were actually reduced in certain domains.

**Keywords:** Covid-19, therapy, mental health

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**Title:** The Impact of Different pH on α-Synuclein Structure

**Abstract:** α-Synuclein (asyn) is an intrinsically disordered protein that aggregates into insoluble fibrils known as Lewy bodies that are a key factor of Parkinson's disease (PD). Asyn consists of three domains, the N-terminal, which is basic, NAC domain, and C-terminal domain which is acidic. Because the protein contains localized regions of acidic and basic residues, pH plays an important role in asyn protein structure. Using molecular dynamics (MD), we plan to simulate the protein under acidic, neutral, and basic conditions to understand how monomeric intramolecular contacts are affected by pH. At low pH, the acidic residues will be neutralized, while at high pH, the basic residues will be uncharged. These changes to residue charge will likely disrupt electrostatic interactions that known to form between the N-terminal and C-terminal domains. These simulations and the subsequent analysis will provide a better understanding of the impact of pH on asyn structure and aggregation.

**Keywords:** molecular dynamics, data analysis, protein structure.

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**Poster Number:** 4

**Title:** Do Undergraduate Teaching Assistants Improve Learning Outcomes in Undergraduate Psychology Research Methods?

**Abstract:** Research Methods is typically a required course for social science undergraduates. The course assists students in developing technical skills and competencies in scientific writing and conceptualization. Students in research methods also acquire human and social capital, or soft skills, including emotion management, interpersonal management, and material management. However, research methods can be demanding and anxiety-provoking, and course material is often perceived as complex and difficult. Research on peer learning programs suggests that deploying undergraduate teaching assistants (UTAs) may benefit students. The role of a UTA is to help students navigate academic and emotional roadblocks to developing essential skills. This study evaluates a newly instituted UTA program in undergraduate psychology research methods. Specifically, we examine the effects of UTA inclusion on gains in human and social capital, including self-efficacy around learning and communication, and academic outcomes (i.e., rates of unofficial withdrawal (UW) and F grades) in a 4-credit undergraduate psychology research methods course. Data were extracted from 12 semesters (8 pre- and 4 post-UTA program semesters) of the course from Spring 2013 to Fall 2023. Our sample included all students who completed the 13-item human capital questionnaire (n=649). Mixed model regressions showed that students in semesters with UTAs reported higher levels of human capital by the course's end. We also found a significant 4.2% decrease in UW/F rates after including UTAs. Findings highlight the utility of peer support in improving student performance and learning outcomes within STEM education.

**Keywords:** Research Methods, Undergraduate Teaching Assistants, Human and Social Capital

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**Poster Number:** 5

**Title:** Cultivating Food Sovereignty: A Comparative Analysis of Urban Community Gardening in New York City and Cape Town, South Africa

**Abstract:** Rates of food insecurity are rising across the world in both low and high income countries. Unjust food distribution on a societal level has caused many populations to struggle to acquire available, accessible, and adequate food supplies. Community gardens, defined as small-scale agricultural practice with public ownership, control, and access, allow a community to access foods outside of the larger food system and can supplement a diet with nutritious and personally/culturally significant foods in order to reach a level of food sovereignty. Because of the hegemonic nature of the capitalist food system, community gardening can be a vital anti-racist and anti-imperialist practice depending on geographic context as well as a shining example of grassroots community development. This study looks to qualitatively compare and analyze the perspectives, management, and motivations to participate in urban community gardening between the United States and South Africa, using a community in Queens, New York, USA and Mitchells Plain, Cape Town, South Africa as comparative case studies. I will show that cultural practices around community gardening address the societal ills which lead to a lack of food sovereignty and largely determine how the practice of community gardening occurs across geographic boundaries. Insights from this research can inform community stakeholders how best to organize and administer aid in the form of a community garden based on the underlying needs of their community.

**Keywords:** Community action, food insecurity, urban gardening

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**Title:** The neurophysiology of multi-feature music processing in children with different language backgrounds

**Abstract:** The association/dissociation between music and language processing has long been a matter of debate. Musicians and tonal language speakers are more sensitive to pitch differences than nonmusicians and nontonal language speakers. Bilingual experience modulates auditory processing of sounds, but it is unclear whether and how bilingual experience affects music processing. We measured music processing in bilingual children (5-10 years old) from Mandarin (a tone language) households and three groups of age-matched children from non-tone language households (Bilingual Spanish-English, monolingual mainstream American English (MAE), and African American English (AAE)). The central question was whether bilingual experience on its own enhances auditory processing in general, or whether the its influence on music is dependent on language-specific properties (e.g., tone language, syllable-timed (English) or stress-timed (Spanish) language)). Event-related brain potentials (ERPs) were recorded in an oddball paradigm with six types of music changes (intensity, pitch, rhythm, timbre, slide and location). Preliminary results suggest that for music location changes, monolingual children from MAE backgrounds show larger negative responses (i.e., change detection) than the other three groups. Bilingual Mandarin-English and Spanish-English children showed larger negative responses to intensity compared to the MAE and AAE children. Children with Spanish-English backgrounds showed weaker responses to the change of rhythm and pitch compared to the other three groups. There were no clear advantages of pitch processing for children with Mandarin-English backgrounds. Our initial findings imply that bilingual experience on its may not influence music processing.

**Keywords:** Musical and tonal language, Neuroscience, Audiology

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**Poster Number:** 7

**Title:** A Longitudinal Examination of Relations Between Racial Discrimination and Executive Functioning

**Abstract:** Research has documented negative associations of exposure to racial discrimination with some domains of executive function (EF). EF has three core functions: cognitive flexibility, working memory, and inhibitory control. EF may explain links between discrimination and adverse health outcomes, including depression, substance use, and health behavior. To date, observational research examining this question has been relatively limited, as the majority of studies employed experimental manipulations for discrimination exposure and tested acute same-day effects in the lab. The available longitudinal data have shown that discrimination is prospectively linked with EF; however, longitudinal examinations have been primarily limited to older adults. Clarifying the extent to which exposure to discrimination impacts EF over time in young adults is crucial to identifying opportunities for early intervention. This study evaluates the relations of both recent and lifetime exposure to racial discrimination to the three core EFs (i.e., cognitive flexibility, inhibitory control, and working memory) in a longitudinal sample of Black college students (n = 51). We did not find any significant relationships of lifetime or past week discrimination to any of the core EFs over time. These data suggest that acute effects of discrimination may remit quickly, and chronic effects may be most visible in older adults. Further research is warranted to explore changes over the lifespan in discrimination-related changes in EF.

**Keywords:** neuropsychology, longitudinal study, executive functioning

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**Poster Number:** 8

**Title:** Development of Using Solar Renewable Energy in our Daily Lives

**Abstract:** Solar renewable energy is something that everyone always asks and want for at their homes because there are lots of benefits to having solar energy at their homes. Solar renewable energy is good for bringing electricity in people's houses with a source that comes from the sun. We need air conditioners to stay cool in those hot times. It also helps reduce families spending a lot of bills to pay for electric power and is good for the environment because it does not burn fossil fuels, decreasing carbon dioxide emissions. Solar energy is also reusable for everyone because once consumers purchase it, they don't have to repurchase it. As for us, physics major students of the Physics Department in St. John's University, we can design smaller solar energy panels that can be very much equivalent to the bigger solar energy in order for us (people) to place solar panels in different angles of the roofs of their homes where the sun hits. They are big in size and very costly to purchase, so making them in different sizes can help it be more accessible to people, especially cost wise. It will also be beneficial to have solar energy at times when the weather is super frigid, and they need to turn on the heaters in order to stay warm inside their homes and for all seasons. This way, paying electric bills can be reduced and making everyone's life easier and simpler with having solar renewable energy in our daily lives. Keywords: Four weather seasons, solar panels, economics, environment Emails: adam.choudhry22@my.stjohns.edu, abunaemeh@stjohns.edu

**Keywords:** Solar panels, economics, environment

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**Poster Number:** 9

**Title:** Quantum K - Means, a Quantum Attempt at a Classical Machine Learning Algorithm

**Abstract:** Quantum computing is a comparatively new field that aims to leverage principles from quantum mechanics and utilize quantum theories to accelerate computational processes and tackle various topical problems. While modern quantum theories were first being developed in the early 1900's, the computational power of machines has only been increasing in modern years, amplifying the applicability of quantum computing; not only as an alternative to classical machine learning, but as its own independent option. The classical k-means algorithm is a commonly used classical machine learning algorithm for clustering and separating datasets based on similarity. This helps uncover underlying patterns in the data, and makes it easier to digest and comprehend data. Due to its relative simplicity and widespread utilization, it is easy to implement, it is supported by dedicated Python libraries, making it accessible for users. The qmeans algorithm is a quantum interpretation of kmeans, by using quantum subroutines for distance estimation, finding values amongst sets, an choosing centroids. This paper aims to explore the practicality of running the qmeans algorithm on the IBM Quantum Platform, using IBM's open source toolkit ; Qiskit.

**Keywords:** quantum computing, machine learning, mathematics

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**Poster Number:** 10

**Title:** Examining the Hispanic Paradox for COVID-19 mortality in a community hospital

**Abstract:** The Hispanic Paradox refers to findings which indicate that on average Hispanic populations in the US have equal or better health outcomes compared to non-Hispanic Whites, despite having more disease risk factors. When it comes to COVID-19, literature has demonstrated that Hispanic populations in the US suffered higher infection rates and greater population-level mortality compared to non-Hispanic White populations. However, data on case-fatality discrepancies (i.e., in-hospital mortality comparisons between Hispanic and non-Hispanic White patients) for COVID-19 between Hispanic and non-Hispanic White patients has been less clear, with some studies showing greater fatality rates for Hispanic patients and other showing equal or lower mortality rates. Examining case fatality rates is crucial when it comes to determining whether a Hispanic Paradox may exist for COVID-19. We examined mortality differences between Hispanic and non-Hispanic White patients with COVID-19 in a community hospital at the height of the pandemic. Hospitalized Hispanic patients were less likely to die in the hospital than non-Hispanic White patients. However, Hispanic patients were on average 16 years younger than non-Hispanic White patients; after accounting for age, Hispanic patients were no more or less likely to die than non-Hispanic White patients. These data suggest that disparities in case fatality did not exist for Hispanic and non-Hispanic White COVID-19 patients at this hospital. Nonetheless, health disparities between these patients seem to exist as hospitalized Hispanic patients were far younger than hospitalized non-Hispanic White patients.

**Keywords:** Hispanic Paradox, COVID-19, health disparities

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**Poster Number:** 11

**Title:** An Evaluation of the Goals of Care Communication (GOComm) Workshop: Does experiential training improve clinician self-efficacy and distress tolerance during end-of-life communication?

**Abstract:** GOComm is an interdisciplinary clinical workshop that aims to improve healthcare professionals' (HCPs) serious illness and goals of care (GOC) discussion skills. Clinicians have reported feeling discomfort when engaging in these conversations due to an overall lack of training/education on end-of-life (EOL) care. The current study aims to explore the effect of an experiential training communication program (GOComm) on HCP's distress tolerance and perceived self-efficacy surrounding EOL/GOC conversations. We analyzed data from 108 HCPs working across NewYork-Presbyterian medical centers. Physician distress tolerance was measured using 10-item The Physician Distress Intolerance Scale (PDI; Brondolo et al., 2023). Self-efficacy was assessed using a 7-item scale to assess participants' perceived performance/skill-level in domains related to palliative care (Pan et al., 2023). Average gains in perceived self-efficacy were 2.84 from pre-to-post workshop. Average gains in distress intolerance were -5.22 from pre-to-post workshop, indicating decreases in physician distress. Paired t-test analysis indicated that physician distress intolerance significantly decreased from before the workshop ($M=36.87, SD=8.09$) to after ($M=33.28, SD=9.43$) the workshop ($t(107) =-7.05, p<0.001$). Paired t-test analysis indicated that perceived self-efficacy improved from before the workshop ($M=16.99, SD=3.54$) to after ($M=19.97, SD=3.19$) the workshop ($t(106)=8.68, p<0.001$). This study's findings demonstrate significant improvements in both distress intolerance and perceived self-efficacy. The results indicate the potential benefits of using experiential training to target communication training gaps amongst HCPs .

**Keywords:** experiential training, communication, goals-of-care

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**Title:** The neural development of Mandarin lexical tone processing in bilingual English-Mandarin children

**Abstract:** Both language experience and stimulus properties (i.e., acoustical salience) influence the development of lexical tone processing. Event-related potentials (e.g., mismatch responses, MMRs) and behavioral measures show that Mandarin lexical tone processing is immature in monolingual toddlers and preschool children. However, the developmental trajectory and how childhood bilingualism affect the MMR with respect to lexical tone processing remain largely undefined. Here, we used EEG and an oddball paradigm in which Mandarin tone 3 (low rising) served as the standard stimulus, and tone 2 (rising) and tone 1 (high level) as deviant stimuli. We measured MMRs in bilingual English-Mandarin children between 5 and 10 years of age and between 13-18 years of age. We found that the youngest children (5- to 7-year-olds) showed more positive MMR to Tone 3 -Tone 2 contrasts compared to older children (8- to 10-year-olds), while these two age groups showed similar MMR to the Tone 3 – Tone 1 contrasts. Bilingual teenagers showed similar Mismatch Negativity (MMN) and late negativity responses to native Mandarin speaking adults [Yu et al. (2018)]. These results suggest that automaticity in lexical tone processing occurs over a more protracted timeframe in bilingual Mandarin-English learning children compared to their monolingual Mandarin-learning counterparts.

**Keywords:** Event-Related Potentials (ERP), Mismatch Negativity (MMN), Neurodevelopmental Trajectory

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**Title:** La storia che ci fa

**Abstract:** One of the biggest influences in my life is my grandfather, Luigi DiCamillo. I was named after his wife, Assunta, who passed away just a year before I was born. They grew up in the same small town in Italy; San Vittore del Lazio. Surrounded by a close family, I was immersed with stories that allowed me to feel a nostalgia for a time that once was. The lives of my grandparents have shaped who I am as a person, and both of their spirits are imbedded into who I am. One year ago, I visited the town on my own for the first time. Although I had never been before, I felt deeply connected with the land and its scenic beauty. I had a sense of familiarity as I wandered through historical medieval streets, into olive groves in the mountains. Throughout the past year, I have been reflecting upon this experience and its meaning to me. I created a body of work to respond to these ideas through painting, color film photography, and documenting archival images. During my day in the town, I shot a roll of film to capture what I was soaking in visually. These photographs have served as inspiration for my paintings, which are informed by impressionists techniques of capturing light and color in fleeting moments of time. To further inform my work, I discovered my grandmothers photographs and documented these archival images. These historical images provide insight to the story of my grandparents, allowing me to grow in my understanding of my ancestry. Beyond myself, this body of work is an investigation of what shapes us as human beings. We are all born into families with histories that make us who we are. Recognizing the beauty in this may allow us to deepen our understanding of ourselves and our relationship with the stories that came before our own.

**Keywords:** painting, photography, archival material

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**Poster Number:** 14

**Title:** Optimal Layout for Installing Efficient Solar Panels for Housing and Businesses

**Abstract:** With the increased population in the world, the demand for energy has increased tremendously in the past decade. Looking at clean environmental energy is essential to not only the landlord paying a lot of money on utilities but also for the environment and for the people that actually go out to collect coal. One form of cleaner energy is solar panels, and to be more specific, finding what would be the best layout and design of a more efficient panel to get more or the same power as a larger one. In our research, we investigated two different solar panels and compared the irradiance and power output at different angles. This will be used to design the new state of the art solar panel for home or business use. The overall result will help in getting better quality solar panel intake in less area while producing more power. Using renewable resources will allow us to live independently with increasing costs and having cleaner energy is essential with the advantages of living sustainably with clean energy that will pave the way for a better environment and future for generations to come.

**Keywords:** Renewable Energy, Irradiance, Power

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**Title:** Social Determinants of Health and Assigned Clinical Severity in the Emergency Department

**Abstract:** Emergency departments (ED) are responsible for a wide range of critical services, and the swiftness of patient care can influence clinical outcomes. Prioritization of patient care is based on illness/injury severity and resource availability. Social determinants of health (SDoH) may also influence triage decisions, as assessed by scores on the Emergency Severity Index (ESI). SDoH variables can be organized with the framework of the Andersen Model (Chen & Gu., 2021). Predisposing (e.g., race, ethnicity, age, gender) and access (e.g., availability of medical resources, insurance status) factors have been found to influence emergency department (ED) outcomes. Prior studies have suggested that there are differences in ESI assigned to patients of different races and ethnicities. Zhang et al. (2020) found that Black patients were 7% less likely to receive an urgent ESI score than White patients, and Black patients were more likely to be assigned non-urgent scores. There is an increased risk of mis-triage with older patients in comparison to younger patients due to symptom severity increasing with the addition of age-related comorbid conditions (Pines et al., 2013; Sax et al., 2023). We examined relations of sociodemographic social determinants of health to ESI scores in an urban community hospital. This study was a retrospective chart review, and data was accessed from the NY-P Queens Hospital electronic medical record (EMR). These results show the impact of sociodemographic variables on ESI outcomes in the ED and may help identify groups in need of preventive interventions.

**Keywords:** health psychology, emergency department disparities, social determinants of health

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**Poster Number:** 16

**Title:** Mediators of the association between Dysfunctional Parent Modes and Emotional Distress and Subjective Well-Being

**Abstract:** Arslan's (2023) research showed that self-compassion mediates the association between dysfunctional parent modes (Young et al., 2003) and emotional distress and subjective well-being. Method. We attempted to replicate this finding in a sample of American undergraduates and tried to extend this line of research by looking at social support and dysfunctional thinking as two other potential mediators. We collected data on 208 undergraduates who completed measures of Dysfunctional Parent Modes (IV), Emotional Distress and Subjective Well-Being (DVs), and three mediators (Self-Compassion, Perceived Social Support, and Dysfunctional Thinking). Results. We replicated Arslan (2023), finding that Self-Compassion mediated the association between Dysfunctional Parents Modes, and Emotional Distress, and Subjective Well-being. When we compared three mediators (Self Compassion, Social Support, Dysfunctional thinking), we found that only Dysfunctional thinking was a significant mediator of the association between Dysfunctional Parent Modes and Emotional Distress. However, with Subjective Well-Being as the dependent variable, Social Support and Self-Compassion were significant mediators of the association between Dysfunctional Parent Modes and Subjective Well-being, but Dysfunctional Thinking was not significant. Conclusions. We replicated Arslan's (2023) findings in an American sample. When extending Arslan's (2023) work, we found that Dysfunctional thinking was a significant mediator when predicting Emotional Distress. On the other hand, when predicting Well-being, Dysfunctional Thinking was not significant, but Self-Compassion and Social Support were significant mediators. It seems that different combinations of predictors and mediators are relevant depending on the valence of the outcome variable (distress vs. well-being). The relevance of these findings for psychotherapy are discussed.

**Keywords:** psychology, dysfunctional parent modes impact, emotional distress

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**Poster Number:** 17

**Title:** Eye On The Numbers - Investigating Judgments and Decision-Making Using an Eye-Tracking Paradigm

**Abstract:** When faced with category judgments involving both diagnostic “stereotype” information and numerical base-rate information, people largely rely on stereotype information, a phenomenon known as base-rate neglect. For example, consider the following passage: "In a study, 1,000 people were tested. Among the participants there were 3 doctors and 997 nurses. Paul is a randomly chosen participant of the study. Paul is 34 years old. He lives in a beautiful home in a posh suburb. He is well-spoken and very interested in politics. He invests a lot of time in his career". Readers will typically say that Paul is a doctor rather than a nurse, despite the fact that there was a 99.7% chance that a “randomly chosen participant” would be a nurse. What cognitive processes drive these decisions? Here, we test whether eye-tracking can be a viable tool to investigate people’s thought processes while making these judgments. We ask participants to make category judgments, such as in the example above, while a computer tracked their eye-movements. Prior research has indicated that people tend to look longer at items that they are paying more attention to. One would therefore predict that participants who look longer at numerical information subsequently make more use of numerical information in their judgments. Demonstrating a link between eye-gaze and judgment is the first step in a planned program of research to use eye-tracking as a window into the cognitive processes that underlie judgments.

**Keywords:** decision-making, eye tracking, cognition

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**Poster Number:** 18

**Title:** Binding of naphthenic acids to dissolved organic matter and the use of phytoremediation for naphthenic acid pollution

**Abstract:** The goals of this study were to investigate the binding of naphthenic acids, a major contaminant in the Canadian oil sands, to humic acid, a major component of dissolved organic matter (DOM), to achieve the long-term goal of improving remediation methods for oil sands pollution. The mechanism of naphthenic acids (NAs) binding to humic acid was investigated using Stern-Volmer analysis of fluorescence quenching data. To determine which functional groups of NAs impact binding strength to humic acid, a series of model compounds to isolate common functional groups were used, and it was found that smaller, more compact NA model compounds have higher binding constants with humic acid. Based on our initial studies, more NA model compounds will be selected to further investigate the binding mechanism between NAs and humic acid. Phytoremediation, the use of plants to uptake pollutants, has been proposed as a possible remediation method for organic pollutants in the Canadian oil sands. In this phase of the project, our goal was to investigate the use of hydroponically-grown wheat grass as a possible method for removing NAs from contaminated water, quantified by UV-Vis spectroscopy. Using the set of model NA compounds, initial results indicate that benzoic acid is taken up by wheat grass. Further studies will expand upon the set of model NA compounds, and will include the presence of dissolved humic acid to determine the impact of DOM on phytoremediation effectiveness.

**Keywords:** Environmental chemistry, environmental contaminants, remediation methods

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**Poster Number:** 19

**Title:** Quantum Computing and Fraud detection

**Abstract:** In the financial industry today, machine learning algorithms are used for fraud detection models, the objective is to minimize the amount of fraudulent transactions. Not only do they minimize fraudulent transactions but it is also important that legit transactions are not flagged as fraudulent. This research project investigates the efficacy of quantum computing algorithms in comparison to classical machine learning approaches for fraud detection models. The quantum algorithm is executed using a IBM quantum computer or a quantum computer simulator which has been developed by IBM. By using these quantum algorithms, we aim to assess their performance and effectiveness in detecting fraudulent transactions and compare it to classical machine learning algorithms that are commonly used for the task in the financial industry today. Furthermore, this research focuses on understanding the scalability and limitations of quantum computing in especially processing large datasets. We investigate the maximum size of data that can be effectively processed through quantum computing systems. To evaluate the performance of both quantum and classical algorithms, we use standard performance indicators such as accuracy, precision, recall, and F1-score. Through analysis we aim to provide insights into the comparative advantages and limitations of quantum computing in fraud detection applications.

**Keywords:** Quantum Computing, Machine Learning, Fraud Detection

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**Title:** OCEAN/DIAMONDS Congruency Analysis: Do People see the congruence researchers expect?

**Abstract:** We assume as researchers that our categorization of terms and concepts are predictive of observable tendencies and behaviors out in the world. However, is that really the case? The present study sought to test that assumption regarding personality x situation trait matching. The study consisted of 94 participants with a gender split of 70:20 favoring females (2 reported gender as “other”, 2 were missing data). Of the participant population, 59% (59.14%) were between the ages of 18-21. With 44% (44.09%) of participants being White, Non-Hispanic. The stimuli consisted of 12 personality profiles and 3 situations profiles. Personality profiles were based on the higher order Alpha (Neuroticism, Agreeableness, Conscientiousness) and Beta (Extraversion, Openness) factors. All possible combinations of positive and negative factors were achieved. Combinations of all positive or all negative factors were not included. Situational profiles were based on 5 of the 8 DIAMONDS (Used: Dutifulness, Adversity, Mating, Intellect, Sociality & Dropped: Deception, Positivity, Negativity), to maintain balance across person and situation. Situational profiles were arranged to reflect situations pertaining to partying/dating (social), work/school projects (task), or traveling/roommate (collaborative) circumstances. The study failed to find congruence effects for three of the five OCEAN traits (Openness, Conscientiousness, and Agreeableness). Additionally, Neuroticism showed an antithetical congruence effect. Which raises questions as to how we choose to group these traits.

**Keywords:** Personality Psychology, Congruence, Person x Situation

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**Title:** Judging Risk in a Risky World

**Abstract:** Two well-known phenomena in the field of Judgment and Decision Making are Temporal Discounting (preferring a smaller immediate reward to a larger delayed reward, i.e. $100 now vs. $101 next week) and Risk Aversion (preferring a smaller certain reward to an uncertain greater reward, i.e. a certain $50, vs. a coin flip for $101). One factor thought to influence people's willingness to wait or take risks for a greater reward is the current uncertainty or "risk" level in the day-to-day environment. When a person's day-to-day environment is riskier, they tend to be less willing to wait or take risks. In this ongoing study, we are investigating how changing risk levels associated with COVID-19 influence Temporal Discounting and Risk Aversion. For the past 4 years, we have had undergraduate students at St. John's University complete surveys assessing their hypothetical willingness to wait or take risks for greater rewards. We will be evaluating if participants' Temporal Discounting and Risk Aversion has changed over time as the threat of Covid-19 has receded.

**Keywords:** Judgment Decision Making, Temporal Discounting, Risk Aversion

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**Poster Number:** 22

**Title:** The Impact of Changes in Salinity on Alpha-Synuclein Structure

**Abstract:** Alpha-synuclein (αS) is an intrinsically disordered protein that, when improperly folded, aggregates into insoluble fibrils and aggregates known as Lewy bodies. These are associated with neurodegenerative disorders, including (but not limited to) Parkinson's disease. αS is composed of three domains: a basic and amphipathic N-terminal domain, a mostly hydrophobic central NAC domain, and a strongly acidic C-terminal domain. The N- and C-terminal domains are known to form inter-domain electrostatic contacts that modulate the protein's structure. Increasing or decreasing the ions in solution will likely interfere with the attraction these domains have to each other. We plan to use molecular dynamics (MD) to simulate the protein at low, medium, and high salt concentrations to understand how the monomeric αS structure is affected by ionic strength. This will allow us to understand how protein aggregation is affected by various cellular environments.

**Keywords:** Chemistry, Biophysics, Molecular Dynamics

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**Poster Number:** 23

**Title:** How Do Mindfulness and Self-compassion Elicit Unfavorable Outcomes? No Effect of One Without the Other

**Abstract:** This work investigated the interaction of mindfulness and self-compassion when predicting flourishing. Mindfulness and self-compassion have become increasingly popular for their benefits, but there is much to uncover about how these variables elicit favorable and unfavorable outcomes. We hypothesized that having high levels of mindfulness and self-compassion is necessary to elicit the strongest relationships with flourishing and prevent either variable from having negative relationships with flourishing. Our survey gauged the mindfulness, self-compassion, and flourishing levels of 180 participants from the St. John's University undergraduate pool. We used hierarchical linear regression to test for an interaction effect of mindfulness and self-compassion when predicting wellbeing, which would provide evidence for a moderating effect. Our results did not support the presence of an interaction effect. Neither variable strengthened the relationship between the other and flourishing. Also, a lack of either variable did not reverse the relationship between the other and flourishing. Given that mindfulness and self-compassion can sometimes elicit deleterious effects on wellbeing, this study provides evidence that a lack of mindfulness or a lack of self-compassion is not responsible for these adverse outcomes.

**Keywords:** Mindfulness, Self-Compassion, Mechanisms

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**Title:** Comparing Models of the Moral Injury Events Scale in Italian Healthcare Providers

**Abstract:** Potentially morally injurious events (PMIEs) are one category of stressors that may drive mental health consequences in healthcare providers (HCPs). PMIEs are specific traumatic stress exposures characterized by violation of one's moral beliefs, by omission or commission, or witnessing trusted others violating a shared moral code. Researchers have begun to draw theoretical distinctions among subtypes of PMIEs and examine the structure of PMIEs through factor analytic investigations. However, gaps in knowledge as to the measurement of this construct remain due to lack of consensus of factor analytic studies. The Moral Injury Events Scale (MIEs) is a popular, validated measure of PMIEs. Factor analytic studies employing the MIES support the notion that PMIEs are multidimensional. However, most studies have employed military samples, and findings regarding the specific structure of PMIEs are mixed both between and within military and HCP samples. Therefore, we aimed to compare four models of the MIES initially fit to military samples in a sample of 270 Italian HCPs. We hypothesized that a three-factor model including dimensions of committed transgressions, witnessed transgressions, and betrayal would fit best. Consistent with our hypotheses, the three-factor model exhibited the best fit. Our findings hold implications for theoretical conceptualization of PMIEs, highlighting the importance of these dimensions as related but conceptually distinct stressors. Findings have implications for cognitive and affective treatment approaches. For example, while consequences of committed transgressions may be more responsive to exposure-based intervention, impacts of betrayal may be maintained by more pronounced changes to relational schemas.

**Keywords:** healthcare providers, moral injury, psychometrics

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**Poster Number:** 25

**Title:** Examining Associations of Interpersonal Relationship Quality to Self-Efficacy Among Teachers in Vietnam

**Abstract:** Self-efficacy and job satisfaction are core components of occupational well-being. Job satisfaction refers to a person's global evaluation of their work and workplace environment. Self-efficacy reflects belief in one's ability to perform important tasks successfully. For teachers, self-efficacy may involve beliefs in their ability to manage their classroom, keep their students engaged, and offer effective instruction. Teacher's relationships with their students have been associated with greater self-efficacy and job satisfaction, however relatively few studies have examined effects of teacher-colleague and teacher-principal relationships. In addition, data has largely been limited to Western educational contexts. Less is known about how social relationships affect the well being of teachers in southeast Asia and specifically Vietnam. Our study aims to examine the effect of the quality of the interpersonal relationships that teachers have with their students, colleagues and principles on self-efficacy and job satisfaction. To test this, we gave online surveys to K-12 teachers in Vietnam including self-reported measures of teacher's interpersonal relationship, self-efficacy, and job satisfaction with a final sample of 1,961 teachers. Overall, we found that all three types of teacher relationships were associated with greater self-efficacy and job satisfaction. Additionally, self-efficacy partially mediated relations between all three relationship types and job satisfaction, suggesting potential for additional mechanisms in the contribution of interpersonal relationships to job satisfaction among teachers. Our findings suggest that investing in social relationships may be one way to improve self-efficacy well-being for teachers.

**Keywords:** international studies, education, psychological studies

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**Poster Number:** 26

**Title:** Personaility and Attention using Eye Tracking technology

**Abstract:** Ninety particpants were exposed to thirty two trials in which they were presented trials about persons and stituations. At the end of each trial partipants were asked to indicate the strengh of their prefernce with interaction with the prescribed person in the prescribed sutiation. There was a small, but significant tendancy for particpants to pay more attention (mesured in milliseconds) to information about people than to informaton about situations. This finding is consistant with the hypothesis that people generally care more about the person they are with than the situation they are in.

**Keywords:** Personility, Attention, Eye tracking technology

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**Poster Number:** 27

**Title:** Promoting Community Well-being through Relationship Marketing and the '5 Ways to Wellbeing' in Library Outreach Initiatives

**Abstract:** This research focuses on the role of libraries in improving community well-being by addressing loneliness through various outreach, public relations, and relationship-building initiatives. The COVID-19 pandemic has made people more aware of the importance of social connections, and libraries have responded by offering programs and activities that promote interpersonal relationships and meaningful connections. The "5 Ways to Wellbeing" framework, developed by the New Economics Foundation, suggests five key actions for improving well-being: Connect, Be Active, Take Notice, Keep Learning, and Give. This research examines the ways in which libraries fulfill the 5 Ways to Wellbeing through community-centric events, social programs, and collaborative partnerships, and evaluates how effectively these initiatives improve the well-being of their communities. This research also explores the benefits of integrating relationship marketing with the 5 Ways to Wellbeing to enhance the effectiveness of libraries' initiatives that mitigate loneliness, foster connections, and improve communities' overall well-being.

**Keywords:** relationship marketing, library outreach, community well-being

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**Poster Number:** 28

**Title:** AI in healthcare

**Abstract:** The exponential growth of artificial intelligence (AI) research over the last decade is apparent, with over 100 million users interacting with AI systems as of 2023, according to the US Government Accountability Office. This increase indicates that AI will inevitably be integrated into everyday life. In light of the current controversy surrounding its application, a detailed study of both the benefits and risks, as well as the social and ethical consequences, is essential. One critical area for AI research is healthcare, where AIs capacity to perform imagery analysis could potentially revolutionize diagnostics and treatment. By examining trends in a patient's medical history, AI systems can provide insights that, when confirmed by educated healthcare practitioners, can help optimize diagnosis and treatment strategies. Healthcare AI, like an electric vehicle, serves as a supporting tool in the hands of highly trained professionals, rather than a means of replacing them. However, in order to safely capitalize on AI's potential, strict limitations and regulations must be in place. As technology advances, so should the scope of our research, which includes content analysis and comparisons of AI across various industries. Understanding the implications of AI for healthcare emphasizes the necessity for continual study to ensure its ethical and successful integration into medical practices. In navigating the future, a balanced approach to AI development and deployment is essential, highlighting its power as a tool when used wisely, rather than a cause for concern.

**Keywords:** Artificial intelligence, healthcare, public perception

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**Title:** Examining Effects of Noise Pollution on Psychosomatic Symptoms Among Teachers in Vietnam

**Abstract:** Noise pollution is an environmental stressor that has been shown to have adverse effects on health. Some of these effects include change in regulation of heart rate, blood pressure, and overall vascular health, in addition to effects on hearing. According to the literature, it's unclear whether the adverse effects result from noise exposure directly or from stress resulting from it. This study aimed to assess the impact of both exposure to noise and noise-related stress on psychosomatic symptoms in a sample of 1961 teachers in Vietnam. We measured noise-related stress with a 4-item self-report questionnaire and Psychosomatic symptoms with a 10-item questionnaire, which assessed the frequency of symptoms including headaches, stomach aches, back pain. We simultaneously tested effects of noise exposure and noise-related perceived stress on psychosomatic symptoms in multiple regression analyses controlling for age, experience, gender, and grade level(s) in our Multiple regression models. We found significant positive associations of reported noise exposure and noise-related perceived stress with psychosomatic symptoms. We also evaluated noise-related stress as a mediator and found both indirect and direct effects of noise exposure on psychosomatic symptoms, which suggests partial mediation. These findings highlight the importance of both direct and indirect effects of noise exposure through noise-related perceived stress on the physical health of teachers in Vietnam. Both structural and individual-level factors likely drive psychosomatic complaints. Multi-level interventions may likely be needed to support teacher health. These interventions could focus on reducing noise throughout the school system, as well as helping teachers modulate their stress.

**Keywords:** psychology, literature review, data analysis

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**Title:** Mutations affecting the genetic regulation of sperm activation give rise to infertility in the nematode C. elegans

**Abstract:** Sperm activation in Caenorhabditis elegans is a post-meiotic differentiation process essential for fertility. Initiation of sperm activation in C. elegans is known to be genetically regulated by the poorly understood SPE-8 and TRY-5 pathways, which allow round spermatids to be transformed into motile spermatozoa with pseudopods. These semi-redundant pathways are associated with proteases, cell-surface receptors, and intracellular signaling molecules, with other unidentified molecules believed to be involved. Forward genetic screens yielded temperature sensitive mutant allele, as47, leaving hermaphrodites self-sterile. This infertility defect is rescued by mating sterile hermaphrodites with wildtype males, suggesting this is sperm-related. Differential interference contrast (DIC) microscopy show mutant hermaphrodites with oocytes in the uterus and wildtype hermaphrodites with fertilized eggs in the uterus. DAPI staining reveal mutant hermaphrodite sperm unable to migrate into the spermatheca, suggesting faults in sperm motility. Hermaphrodite dissection show sperm that were not fully activated in vivo. Whole-genome sequencing identified a candidate gene with a tm5344 deletion. The tm5344 and as47 alleles fail to complement each other, suggesting that they are involved in the same gene. Brood counts reveal a decreased incidence of tm5344 male fertility in comparison to wildtype males. DAPI staining of tm5344 hermaphrodites confirmed presence of oocytes in the uterus. Sperm activators pronase and zinc sulfate show sperm activation defects in tm5344 males. The goal of this work is to determine if this gene may be part of the SPE-8 or TRY-5 pathways, acting in the regulation of the initiation of sperm activation.

**Keywords:** sperm activation, genetic regulation, fertility

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**Poster Number:** 31

**Title:** Trust, Stress and Purpose at Work among Vietnamese Teachers

**Abstract:** Purpose in the workplace refers to the degree to which employees find their work meaningful beyond task completion or financial compensation, connecting to a larger, more significant goal. A lack of purpose or meaning in the workplace has been associated with increased turnover rates and reduced job and life satisfaction. Research on teachers' occupational well-being emphasizes the importance of meaning, prompting exploration into factors contributing to meaningful work, such as trust. Workplace trust reflects the level of confidence and belief teachers have in their organization's leadership, policies, and culture. The absence of trust is theorized to lead to a stressful work environment, potentially diminishing teachers' sense of meaning and purpose in their work. However, the connections among trust, stress, and meaning in the workplace are intricate and challenging to establish in terms of directionality. Although there is limited data on mechanistic pathways and a formal model is yet to be tested, understanding the relations among these constructs can offer valuable insights for future investigations. Therefore, we aim to evaluate perceived stress as a mediator of the relationship between trust and purpose in a sample of 1961 teachers in Vietnam. Multiple regression controlling for age, experience, and grade-level taught showed a significant positive relationship between trust and purpose. We found a significant indirect effect of trust on purpose through perceived stress. The direct effect remained significant, suggesting partial mediation. Our findings suggest potential to reduce stress and enhance meaning in the workplace by improving trust among teachers.

**Keywords:** Psychology, Occupational Well-being, Purpose or Meaning

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**Poster Number:** 32

**Title:** Both the N and C domains are required for the proton channel function of the human Otop1 protein.

**Abstract:** Otopetrin 1 (Otop1), a member of the recently identified Otop proton channel family, is the sour taste receptor in mouse. Otop proteins are homodimers in which each subunit contains structurally similar six-transmembrane N and C domains. How these two domains cooperate in channel function is largely unknown. In this study, we show that both the N and C domains of human Otop1 are required for channel function. We found that coexpressed N and C half channels can assemble and form functional channels in Xenopus oocytes. More interestingly, a domain-reversed Otop1 mutant with the C domain placed in front of the N domain in the protein sequence is functional as long as the linker in between is long enough, suggesting that the N and C domains fold separately during synthesis and assemble into a functional structure by forming the critical intrasubunit interface. This study helps to gain sights into the molecular mechanism of the structure and function of this new ion channel family.

**Keywords:** Otopetrin 1, Sour taste receptor, Molecular biology

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**Poster Number:** 33

**Title:** Similarity Between Participant and Others' Personality Traits Influence Preference

**Abstract:** Background: Of the Big Five personality traits, they are organized into alpha and beta personality traits. Alpha traits agreeableness, conscientiousness, neuroticism (emotional stability). Beta traits are extraversion and openness to experience. This experiment aims to test the hypothesis that similarity between people's personalities predict preference. Methods: Data was collected from approximately 93 participants through the IPIP-NEO-120 to measure their personalities. 36 randomized sets of stimuli were used to expose them to different target person profiles and measure their preference rating. The IPIP-NEO-120 represents five domains and 30 facets of the Five Factor Model with 120 items. The description for persons in the trial consisted of the Big Five (Agreeableness, Conscientiousness, Neuroticism, Openness and Extraversion) on a low-medium-high scale. A dissimilarity index was created comparing the distance between each participant's personality characteristics to each target person's personality traits following Cronbach and Gleser's (1953) process. The Euclidean distance (D) formula, the square root of the sum of the squared differences between traits, was used to compute how dissimilar a participant's personality profile was from each of the designed target person profiles, assessing person-specific personality profiles rather than clustered profiles or individual traits. Results: A Bayesian linear regression was conducted to test the extent to which personality similarity predicts preference. Results demonstrated how similar people were led to higher preferences (BF10 8635.442). Conclusion: The data shows that how similar people are to others does influence their preference to interact with them more. These findings support our hypothesis.

**Keywords:** Personality, Similarity, Preference

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**Poster Number:** 34

**Title:** Interplay Between RNA Editing and Alternative Splicing Modulates Biophysical and Pharmacological Properties of the Ion Channel CaV1.3

**Abstract:** Adenosine-to-inosine (A-to-I) RNA editing and alternative splicing are two post-transcriptional modification mechanisms that promote proteomic diversity by generating multiple protein variants from a single gene transcript. Notably, the impact of RNA editing on brain physiology is underscored by its association with the etiology and pathogenesis of various neurological and neurodegenerative diseases, including epilepsy, amyotrophic lateral sclerosis, developmental disorders, and cancer, among others. Alternative splicing within the C-terminus of CaV1.3 produces long (43L) and short (43S) variants exhibiting distinct gating and pharmacological properties. While the physiological role of CaV1.3 A-to-I RNA editing in brain function is still unfolding, recent findings indicate that unedited CaV1.3 channels display larger calcium influx and enhanced neuronal excitability and synaptic transmission compared to edited channels, suggesting that A-to-I RNA editing may act as a negative regulator of these neuronal processes. However, it remains unclear which specific splice variants of CaV1.3 undergo RNA editing. In this study, we identified substantial (47%) A-to-I RNA editing in CaV1.3 43S, a short splice variant highly expressed in the brain and spinal cord, while the 43L long splice variant is also edited but at much lower frequencies (15%). The short variant, characterized by 'short' gating properties with a more negative current window and increased current density, undergoes significant A-to-I RNA editing at 2 sites within its calmodulin-binding IQ domain, giving rise to 3 different edited variants. Functional analysis revealed that A-to-I RNA editing markedly decreases current density and induces a depolarizing shift in the current window, aligning the 43S variant's properties with those of the 43L long one. These findings suggest that A-to-I RNA editing serves as a physiological mechanism regulating the 'short' gating properties of the CaV1.3 43S variant.

**Keywords:** A-to-I RNA editing, alternative splicing, CaV1.3

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**Poster Number:** 35

**Title:** Comparison of the N1-P2 Peak Latencies of the Auditory Evoked Potentials Across Two Research Labs

**Abstract:** The overall aim of our research is to understand how the acoustic signals of speech are decoded and transformed to become language-specific in auditory cortex. Our group is analyzing EEG (electroencephalogram) data from adolescents and adults having different language backgrounds, which has been collected at two laboratories, The Graduate Center (GC) and St. John's University (SJU). EEGs are recorded while participants listen to spoken nonword pairs ("ptima-petima"). The nonwords contain onset sound sequences that are either familiar (native language) or unfamiliar (non-native language). The purpose of this preliminary project is to determine whether the auditory-evoked potentials (AEPs) obtained from participants tested at GC or SJU are similar. Laboratories have different software, hardware, styles of electrode sensor nets with different placements of electrodes. To compare AEPs from each group of participants, EEGs were time-locked to the first nonword in the nonword pairs. Data was processed for each participant and trials in response to the onset sequences "pet" and "set" in nonwords were averaged. A sensory waveform component (P1-N1-P2 complex) of the AEP from a fronto-central electrode site was graphed for each participant and the latency for each of the three peaks (P1, N1 and P2) was obtained. T-tests were used to compare the latencies for the N1 and P2 peaks for the GC and SJU groups. Preliminary results revealed latencies for each peak to be similar with no significant difference. Additional participant data must be added to verify these preliminary results.

**Keywords:** Speech Pathology, Comparison, EEG

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**Title:** SIFTing through AI-Generated Misinformation

**Abstract:** This proposal explores the effectiveness of Caulfield's SIFT (Stop, Investigate, Find, and Trace) model to improve information literacy and combat the growing problem of AI-generated misinformation (Caulfield, 2019). The poster presents examples of AI-generated misinformation and shows how the model's four components can be used to identify factual information and distinguish it from false information. The SIFT model is a simple and structured tool that can be used to educate individuals about manipulated content. In the current era of AI-generated misinformation, where numerous strategies are being used to improve information literacy, the SIFT method is a pragmatic framework to enhance critical thinking and reduce the impact of misinformation spread by AI algorithms (Bond, 2023).

**Keywords:** Library Information Science, Misinformation, Artificial Intelligence

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**Title:** BPA upregulates MAF1 in vitro and in vivo

**Abstract:** Accurate RNA polymerase III transcription requires TFIIIB. Deregulation of TFIIIB activity occurs in various human cancers. TFIIIB activity is regulated by oncogenes, tumor suppressors, MAF1, and polyphenols. This study aims to determine if bisphenol A (BPA), a phenolic xenoestrogen, regulates MAF1 in vitro and in vivo. Regulation of MAF1 expression by BPA has not been previously reported. Using bioinformatics methodology, we screened publicly available BPA-treated transcriptomic datasets. Herein, we report that high doses of BPA regulate MAF1 expression in endometrial adenocarcinoma cells. BPA increases MAF1 expression in the livers of C57BL/6J male and female mice exposed to BPA during gestation. We analyzed the MAF1 promoter and identified several estrogen reception alpha and beta binding sites, a potential mechanism to regulate MAF1 expression differentially. As a xenoestrogen, concern exists not only for BPA to initiate estrogen-dependent cancers but to stimulate the progression of estrogen-dependent cancers. BPA inhibits MAF1 expression in the MCF-7 breast cancer cell line, potentially leading to unchecked TFIIIB-mediated RNA pol III transcription in breast cancer. Interestingly, bisphenol B (BPB), the plasticizer replacement for BPA used in Europe, did not affect MAF1 expression. Our data suggest that BPA regulates MAF1 in vitro and in vivo.

**Keywords:** bioinformatics, genetics, environmental health

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**Poster Number:** 38

**Title:** Research and Design of High Maximum Power Output Solar Panels

**Abstract:** With the increasing population of our earth, the demands for energy and energy resources have risen exponentially over the course of the last century. Surplus evidence shows that fossil fuels and coal sources not only have a great cost to the environment and the economy, but most importantly to our health. So how do we address the growing need for new sources of energy? The answer lies with looking at one source of renewable energy as a solution to supply future and current needs of renewable energy: solar panels. Solar panels are not only cost efficient but require minimal setup and create a sustainable community energy system that will easily be a viable replacement for the energy crisis we find ourselves in today. In addition to this, the maximization of solar energy can lead to improving neighborhood value, energy independence, and long-term economic benefit for the average person. Our aim with this project is to review, research, and design a highly efficient solar panel that has bigger outcome and power production than its predecessors. We will do this by studying the most power productive angles and materials and overall, most efficient design. This research will aim to measure the sun's irradiance on a different array of solar panels in order to be the most powerful and practical for general use. We will introduce a concept and result that will be used to design the next generation of solar panels. Our hope is to use this concept to start a fund to design better and more efficient panels to be used for various homes and buildings throughout our communities.

**Keywords:** Physics, Renewable Energy, Design

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**Title:** Examining Latent Profiles of Discriminatory Experiences

**Abstract:** Perceived racial discrimination (PRD) is defined as unfair treatment received due to one's race or ethnicity. While prior research has established that PRD is a chronic psycho-social stressor with various subdimensions, there is less research exploring whether unique patterns of discriminatory experiences exist. The present study used Latent profile analysis (LPA) to model profiles of discriminatory experiences in a sample of Black and Latino/a individuals. Subscales of the Perceived Ethnic Discrimination Questionnaire - Community Version (PEDQ-CV) were used as indicator variables in the LPA. We found four unique profiles that differed in frequency and intensity. The Low All Profile contained 31.2% of the sample (n = 212) and displayed the lowest mean intensity of PRD across all subscales. The Low Moderate Profile contained 37% of the sample (n = 251) and displayed the second lowest mean intensity of PRD, with the Media subscale elevated in relation to all other subscales within the profile. The High Moderate Profile contained 26% of the sample (n = 176) and displayed the second highest overall mean intensity of PRD. The High All Profile contained 6% of the sample (n = 41) and displayed the highest mean intensity of PRD across all subscales relative to the sample, with the Media subscale lower relative to all other subscales within the profile. These findings underscore the differential impact of the sub-dimensions of PRD across Black and Latino/a populations. Understanding patterns of discriminatory experiences can assist researchers in identifying the heterogenous experiences of exposure to PRD across different racial groups.

**Keywords:** LPA, discrimination, psychology

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**Poster Number:** 40

**Title:** Successes and Failures of Mercosur

**Abstract:** Latin American nations envisioned regional integration to back and support their global ambitions as the twentieth century closed. The subregion of South America needed to reorganize itself after a protracted period of dictatorships and resolve shared issues like unemployment and inflation. Their pursuit of regionalism led to the creation of Mercosur, or the Southern Common Market, in 1991. The alliance persisted into the twenty-first century and remains a sizeable regional trade bloc. It comprises every nation in South America, either as full member states or associate member states. Mercosur has evidenced more failures than successes to date. While the alliance has expanded trade, strengthened democracy and peacebuilding, funded infrastructure projects, and promoted cultural exchange, its shortcomings outweigh its accomplishments. The failures of Mercosur include a lack of integration stemming from the absence of supranational organizations, resultant institutional deficiencies, the supremacy of Brazil, an ineffective dispute-resolution process, and the inability to respond to shocks. Therefore, Mercosur will have a challenging future as it confronts Brazil's reign over the alliance, focuses on free trade agreements, manages Chinese influence, and handles ideological disagreements. It has limited capabilities to improve the economies of member states because of inadequate regional leadership from Brazil, limited recovery from the COVID-19 recession, and falling commodity prices. Nevertheless, Mercosur can begin to improve the alliance's economies by taking steps toward greater integration, ratifying its free trade agreement with the European Union, and overcoming protectionism.

**Keywords:** Regional integration, South America, trade

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**Poster Number:** 41

**Title:** Herbal Medicine Curcumin Boosts Testicular Steroidogenesis in Mouse Leydig Cells

**Abstract:** Background - Testosterone is the principal sex hormone for male fertility and overall well-being. Approximately 95% of the total testosterone in the male body is produced by Leydig cells in the testes through a process called testicular steroidogenesis. During aging, serum testosterone levels progressively decline in men, with concomitant diminished muscle and bone mass, energy level, libido, and cognitive functions. The present study was to investigate whether the herbal medicine curcumin can protect Leydig cells and boost their steroidogenic capacity. Methods - Dose- and time-response studies were carried out on two mouse Leydig tumor cell lines, MLTC-1 and I-10. Cells were incubated with curcumin at concentrations of 3.3, 10, and 30 μM for a total of 6 days, with chemical/medium change and cell viability assessed every 2 days. Viable cells were counted and collected for subsequent RNA extraction and real-time quantitative PCR analyses of the expression of key steroidogenic genes. The amounts of steroid hormones (i.e., progesterone and testosterone) synthesized and subsequently secreted into culture medium were quantified using ELISA kits. Results - Curcumin stimulated the proliferation of both Leydig cell lines at low and middle concentrations and affected the expression of steroidogenic enzymes. As a result, the production of progesterone and testosterone by Leydig cells was also altered. Conclusion - Curcumin showed a protective effect on mouse MLTC-1 Leydig cells. Furthermore, curcumin increased the expression of key steroidogenic enzymes in Leydig cells. These findings suggest that curcumin may have the potential to reinvigorate Leydig cell's steroidogenic capacity and thus may enhance testicular androgen production.

**Keywords:** Curcumin, Leydig Cells, Testosterone

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**Poster Number:** 42

**Title:** "Mind-Gut Connection: Understanding the Influence of Anxiety and Depression on Liver and Gastrointestinal Tract

**Abstract:** The gut-brain axis consists of bidirectional communication between the central and the enteric nervous systems, linking the emotional and cognitive centers of the brain with gastrointestinal function. Depression and anxiety are serious mood disorders and negatively affect our quality of life. Currently, the regulation of neurotransmitters by drugs has been used as the gold standard treatment for psychiatric disorders treatment. Still, there are several known side effects, such as dizziness, headache, and drowsiness. If we could know the novel regulator for emotion in the gastrointestinal tract, it would be an alternative treatment for psychiatric disorders. Human studies have shown that plasma bile acid levels are linked to depression and anxiety. Bile acids are synthesized in the liver from cholesterol and regulate intestinal lipid metabolism and hormone secretion. It is also known that intestinal lipids and hormones impact our emotions. In addition to this, bile acids work as signaling molecules. We hypothesized that depression and anxiety are associated with bile acid synthesis. To test our hypothesis, we evaluated the bile acid synthesis gene and its related gene expression in depression and anxiety model mice. The mRNA was extracted from the liver of the depression and anxiety model mice. The gene expression was evaluated by the qPCR method. We will show the bile acid synthesis gene and its related gene expression in depression and anxiety model mice.

**Keywords:** pharmacology, gastrointestinal studies, emotional disorders

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**Poster Number:** 43

**Title:** Do Negative Relational Schemas Contribute to Cognitive Burdens of Discrimination? Testing a Parallel Mediation Structural Equation Model

**Abstract:** Racial discrimination has been shown to impair executive functioning. Executive functions are essential for cognitive and behavioral control. Researchers have theorized that the cognitive burdens of experiencing discrimination might explain these effects. However, these cognitive burdens have yet to be comprehensively operationalized. Negative relational schemas, reflecting interconnected networks of thoughts, emotions, images, and sensations that comprise mental representations of social phenomena, may be one measurable aspect of this burden. However, this hypothesis has yet to be tested. This study aimed to evaluate relational schemas as parallel mediators of relations between discrimination and core executive functions: cognitive flexibility, working memory, and inhibitory control. Participants included students at a private Northeastern university and urban community-dwelling adults recruited from a local hospital medical center (n = 306). Six structural equation models were fit, with three separate models each for lifetime and past-week discrimination, each with a different executive functioning outcome. All models fit the data adequately. Overall, our findings suggested that relational schemas can account for some of the cognitive demands of discrimination. Our analyses found negative indirect effects of lifetime and past-week discrimination on working memory through mistrust and positive indirect effects of both past-week and lifetime discrimination on inhibitory control through rejection/invalidation. Data suggests that some of the cognitive effects of discrimination can be attributed to the burdensome nature of processing social experiences following sustained social threats. Relational schemas are responsive to psychotherapeutic intervention and may be an efficient treatment target to address cognitive effects of discrimination exposure.

**Keywords:** Discrimination, executive functioning, relational schemas

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**Poster Number:** 44

**Title:** Double Knockdown of CYC-like genes in Fedia graciliflora

**Abstract:** Shifts between radial symmetry (actinomorphy) and bilateral symmetry (zygomorphy) in flowers have occurred multiple times independently within angiosperms. These morphological shifts are commonly associated with increased pollinator specialization and speciation rates. Evidence from studies across angiosperms indicates that the CYCLOIDEA (CYC)-like genes play a role in patterning bilaterally symmetrical flowers. Three core eudicot clades of CYC-like genes have been identified: CYC1, CYC2, and CYC3, with CYC2-like genes being the most involved in dorsal specialization. Fedia graciliflora (Caprifoliaceae) uniquely has strong bilaterally symmetrical flowers that have morphologically distinct dorsal (upper), lateral, and ventral (lower) petals and only two functional stamens. This non-model species was used to investigate CYC-like genes and their regulation of bilateral symmetry. Previous work in our lab has demonstrated how knocking down individual CYC paralogs affects the shape and position of petal lobes in F. graciliflora flowers. In this study, we use an RNAi technology, VIGS (Virus-Induced Gene Silencing), to observe variations in floral symmetry morphology and the effects of silencing two CYC paralogs simultaneously. This study focuses on performing a double knockdown of both FgCYC2A and FgCYC2B. Furthermore, following the double knockdown of the CYC2-like genes and observation of the effect on floral symmetry, the double knockdown of FgCYC3A and FgCYC3B will be investigated.

**Keywords:** Evolutionary development, molecular biology, botany

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**Poster Number:** 45

**Title:** Kv7.2 Splice Variants: Impact on Neuronal Excitability and Seizure Disorders?

**Abstract:** Voltage-gated potassium channels (VGKCs) play crucial roles in various cell types, including neurons, muscle cells, and cardiac tissue, regulating critical physiological processes such as action potential repolarization, neurotransmitter release, heart rate regulation, and insulin secretion. The VGKC subunit Kv7.2, encoded by the KCNQ2 gene, is highly expressed in key brain regions like the cerebral cortex, hippocampus, and cerebellum, regulating neuronal excitability and maintains resting membrane potential. Mutations in Kv7.2 are linked to autosomal dominant benign familial neonatal convulsions (BFNC) and early-onset seizure disorders. Notably, the cytoplasmic C-terminal domain of Kv7.2, housing several functional domains essential for homomeric or heteromeric subunit assembly and for a complex network of mutually interacting molecules, such as calmodulin, phosphatidylinositol 4,5-bisphosphate (PIP2), syntaxin-1A, and protein kinase C-regulated factors, is susceptible to epilepsy-causing mutations. Despite over 10 identified alternative splice sites in Kv7.2, the physiological properties of many splice variants remain unexplored. To address this gap, we have developed mouse Kcnq2 minigene reporters to investigate the modulation of Kv7.2 alternatively spliced exons. Preliminary investigations, conducted by testing these reporters against various splicing regulators, indicate that specific factors significantly influence alternative splicing events of the Kv7.2 channel. Our ongoing research employs techniques such as two-electrode voltage clamp in frog oocytes and patch clamp in mammalian cells to comprehensively assess the physiological characteristics of these splice variants. By unraveling the regulation of Kv7.2 splicing by diverse splice factors, our work may provide novel insights into the molecular mechanisms underlying BFNC, potentially identifying new targets for therapeutic intervention.

**Keywords:** Ion channels, alternative splicing, neurobiology

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**Title:** Development of Whole-Cell Biosensors for Early Detection of Oral Squamous Cell Carcinoma

**Abstract:** The construction of sensors for early and non-invasive detection of disease biomarkers has enormous potential for the future of preventive medicine. Whole-cell biosensors (WCBs) are biological systems in which living organisms detect molecules of interest and relay their presence by producing a measurable signal. Transcription factors (TFs) are used as detectors in WCBs due to their ability to enact changes in the regulation of a gene's expression upon detection of a small soluble molecule. Since TFs capable of detecting every biomarker of interest have yet to be described, we are leveraging an array of synthetic biology tools to build TFs capable of detecting new molecules. Our approach involves the treatment of biological parts as modular pieces to create these new TFs so that, if a protein capable of binding a disease biomarker can be identified in available databases, a new chimeric TF capable of modulating the expression of a reporter gene can be generated and become the cornerstone of a WCB for said biomarker. The proof-of-concept presented herein consists of the detection of neuraminic acid (Neu5Ac), a salivary biomarker associated with oral squamous cell carcinoma (OSCC), a cancer that accounts for 80% of all malignant neoplasms of the oral cavity. Here we describe the functionality of a preliminary bacterial strain capable of detecting Neu5Ac at concentrations equivalent to those found in the saliva of an adult. Our ultimate aim is the creation of portable devices housing living cells that express our synthetic genetic circuits. Salivary samples can then be obtained from patients in situ at a dental clinic, followed by the rapid detection of the presence of biomarkers. This technology has the potential to transform the future of diagnostics and personalized medicine. While our particular biosensor will serve to aid in the early detection of OSCC, the validation of such TFs will lead to the assembly of a platform that can be applied to clinical screening panels for a multitude of other medical conditions.

**Keywords:** Synthetic, microbiology, biosensor

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**Title:** Conformational Molecular Dynamics Study of Dynamin Catalyzed GTP Hydrolysis States

**Abstract:** Dynamin is a GTPase protein involved in the final stage of clathrin mediated endocytosis. It assembles around the neck of budding lipid membrane vesicles and hydrolyzes guanosine triphosphate (GTP) into guanosine diphosphate (GDP), providing the free energy necessary for vesicle constriction and membrane cutting. Currently there is no agreed upon mechanism for dynamin induced membrane fission. Two models have been proposed, fission by disassembly and fission by torsion. Understanding the conformational changes that occur during GTP hydrolysis would clarify how the free energy released by the protein is used to induce fission. Specifically, we are interested in studying how the formation of catalytic dimers, the on/off binding of GTP and GDP, and the release of inorganic phosphate lead to allosteric conformational changes in the protein. Using molecular dynamics, we plan to simulate and analyze the different states involved in dynamin-catalyzed GTP hydrolysis and compare our findings to existing experimental structures. This will provide new structural insights into the molecular interactions that lead to dynamin induced membrane fission.

**Keywords:** Molecular Dynamics, Biophysical Biochemistry, Computational Chemistry

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**Poster Number:** 48

**Title:** How is Social Media Time Impairing Study Time Among College Students

**Abstract:** There is no doubt about the positive contributions that social media platforms have had in our everyday lives by making our social communication and interaction easier and faster with each other throughout the world. However, the young generation is becoming highly involved and addicted to various features of social media, which is negatively impairing important tasks in their lives, like their attention span and time management in studying and the academic field. The purpose of this study is to assess how social media time consumption affects a student's study time management. We hypothesized a negative correlation exists between social media and study time, meaning more social media use reduced study time. The present study addressed this hypothesis by conducting an online survey that was provided to a total of 38 participants (N=38) at St. John's University, and then the data collected was used to run a correlational design. According to the results, we found that the overall relationship between social media use and study time was trending to the negative correlational direction, but also did not demonstrate a significant relationship between self-reported scores in social media use time and a self-reported scores in study time.

**Keywords:** Adolescent Studies, Technology and Social Media Use, Academic Time Management.

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**Poster Number:** 49

**Title:** Preliminary Psychometric Testing of Physician Beliefs about Emotional Expression

**Abstract:** An individual's cultural beliefs regarding emotions are integral in a clinical context. When providing end-of-life (EOL) care these types of emotional conversations frequently arise. Though they can cause discomfort for some individuals, EOL conversations are critical to provide a patient a dignified healthcare experience. To assess cultural differences in emotion beliefs, we are developing a new measure, the Clinical Emotional Expression Scale (CEES). The CEES aims to capture physician beliefs about emotional expression across the domains of controllability and usefulness within a clinical context. The CEES is based on the Emotional Beliefs Questionnaire (EBQ), which is longer and lacks specificity to goals-of-care (GOC) conversations. We analyzed data from 24 healthcare providers (HCPs) working at a New York City hospital system. To determine content validity of the CEES, we administered the EBQ. Construct validity for the CEES was confirmed using the Patient Health Questionnaire- 2 (PHQ-2) and the Generalized Anxiety Disorder- 7 item assessment (GAD-7). Preliminary analyses of internal consistency yielded a Cronbach's alpha of .78 indicating acceptable to good reliability. Cutting the scale from 8-to-4 items did not reduce the overall alpha (a=.77). Preliminary analyses affirm the scale's moderate/good internal consistency and provide preliminary evidence of validity, making the scale suitable for further research. The retained items underscore the importance of physicians' perceived control over emotional expression, suggesting that beliefs in this regard may impact EOL/GOC discussions. These preliminary findings lay the groundwork for a future study aiming to examine physicians' core beliefs influencing EOL planning.

**Keywords:** Emotional Expression, Cultural differences, end-of-life

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**Poster Number:** 50

**Title:** An insight to neurofeedback as a long-term treatment for ADHD: a meta-analysis

**Abstract:** ADHD is one of the most common childhood diseases. There are three subtypes one can be diagnosed with according to the DSM-V. The hyperactive/impulsive subtype which is more commonly known, the Inattentive, formerly known as ADD. And the third subtypes is a mixed presentation of both. For both the hyperactive and inattentive subtype, people need at least 6 symptoms and for those presenting with mixed subtype, at least 12 symptoms should be present. With all the subtypes, symptoms must be present for at least 6 months, and they should interfere with daily life. Common treatments for ADHD include pharmalogical treatments using stimulants or stimulants. Or behavioral therapy options such as cognitive therapy or behavioral therapy. The goal of this study is to synthesis the growing research behind neurofeedback/ biofeedback to see if it can be a palpable alternative in managing ADHD symptoms long-term. Primary inclusion criteria for articles included in this study are as follows: Articles should compare both stimulant treatments and neurofeedback protocols, participants in all the articles will be children and adolescents between the ages 7-27. The design of the articles should be longitudinal study, using between subject measures. Finally, all articles should be written in English. Will be assuming heterogeneity of effect sizes from studies and presenting them in a forest plot. Should expect to see that neurofeedback protocols yield a larger effect size in the long run compared to standard stimulant treatment.

**Keywords:** ADHD, treatment, children, adolescents

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**Title:** Historical Trauma and Ambulatory Blood Pressure Among American Indians and Alaska Natives

**Abstract:** Historical trauma (HT), stemming from centuries of oppression and violence experienced by Native American/Alaskan Native (AI/AN) communities, is associated with adverse mental health outcomes. This study investigates the relationship between HT, negative mood, and ambulatory blood pressure (ABP) among AI/AN individuals living in Colorado. Using a multi-method approach, data were collected from 306 AI/AN participants. Historical trauma was assessed using the Historical Loss Scale, while ABP was measured using ambulatory monitors. Daily negative mood was recorded through electronic diaries, capturing emotions such as anger, sadness, and nervousness. Results revealed significant correlations between HT and depression, as well as daily negative emotions like anger and nervousness. However, no significant association was found with daily sadness. Regression analyses indicated a link between anger and daytime systolic and diastolic BP, while mixed effects models showed an interaction between HT and nighttime ABP. Mediation analyses explored whether daily negative mood mediated the relationship between HT and ABP but yielded nonsignificant indirect effects. These findings suggest that among AI/AN individuals, HT may contribute to increased nighttime ABP, possibly affecting stress recovery during sleep. This study contributes to our understanding of the impact of HT on AI/AN mental and physical health. Future research should explore additional mediators, such as sleep quality, to elucidate the complex pathways linking historical trauma, negative mood, and cardiovascular health among indigenous populations.

**Keywords:** health disparities, historical loss, ambulatory blood pressure

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**Poster Number:** 52

**Title:** Immune checkpoint PD-L1 regulates apoptosis and expression of anti-apoptotic genes in ovarian cancer cells

**Abstract:** Immunotherapies targeting cell surface expression of the immune checkpoint PD-L1 (CD-274) have shown impressive clinical outcomes in many cancers; however, only a fraction of patients achieves durable responses, highlighting our incomplete understanding of the mechanisms of PD-L1 functions. As a cell surface protein, PD-L1 inhibits T cell immune responses, resulting in immune escape. However, recent studies have shown that PD-L1 also has important non-immune intracellular functions that include increased cancer cell proliferation, cell survival, mTOR signaling, DNA damage response, and development of drug resistance. PD-L1 expression in cancer cells is induced by IFNγ, a pleiotropic cytokine produced by activated T cells and by cancer cells in response to radiation therapy or immune checkpoint blockade used in cancer treatment. Our recent studies have demonstrated that in addition to PD-L1, IFNγ induces expression of the anti-apoptotic proto-oncogene Bcl3 and the pro-inflammatory and anti-apoptotic chemokine IL-8. Here, we show that IFNγ unexpectedly induces the nuclear accumulation of PD-L1 in ovarian cancer SKOV3 and OVCAR3 cells. Furthermore, our results demonstrate that PD-L1 suppression by siRNA induces apoptosis and decreases Bcl3 and IL-8 expression in SKOV3 and OVCAR3 cells. Together, our results reveal a novel mechanism of PD-L1 function in cancer cells and suggest that the PD-L1 mediated increased expression of the anti-apoptotic genes Bcl3 and IL-8 might be responsible for the limited effectiveness of cancer immunotherapies targeting the surface expression of PD-L1.

**Keywords:** Cancer immunotherapies, Cell signaling, Apoptosis

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**Poster Number:** 53

**Title:** The Impact of a Music-Based Immigration Program on Children's General and Immigration-Specific Attitudes

**Abstract:** The proposed research study aims to evaluate an educational program to increase appreciation of the diversity of the United States as a country of immigrants and a sense of empathy for the challenges faced with immigrating to an entirely different and unfamiliar culture. The critical component of the educational program is the use of music to express and connect with the diversity of the immigration experience. Participants (N = 47) between ages 9-11 were given the choice to consent to participate in a 6-module educational program during the Fall 2023 semester in a private Northeastern music school regarding the cultural history and experience of immigration in the United States, culminating in a performance to reflect what they have learned. The dimensions of gratitude and optimism will be tested utilizing self-report questionnaires administered before and after the performance on a 10-point scale inspired by the Gratitude Questionnaire – Six Item Form (GQ-6) and The Youth Life Orientation Test (YLOT) respectively. The dimension of self-esteem was measured in a separate self-report questionnaire on a 10-point scale that is an adaption of the Rosenberg Self-Esteem Scale (RSES). A mixed-effects logistic regression was performed, and the results showed there was a substantial increase (r=.719) in empathy toward immigrants, as well as an increase in gratitude (r=.300), optimism (r=.850), and self esteem (r=.535) between the two-time points This increase is consistent with real change and may have further implications for future research for understanding attitudes toward immigration and the impact of music education.

**Keywords:** adolescent studies, music, immigration

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**Poster Number:** 54

**Title:** AI Music & Musicians

**Abstract:** This presentation examines artificial intelligence and its effect on music and copyright law. As artificial intelligence becomes more accessible for everyday use, it is becoming a topic of great intrigue. Specifically, artificial intelligence is being heavily debated among the legal community. My presentation examines the scope under which artificial intelligence will be perceived in terms to copyright through looking at copyright law and copyright statutes. I plan on conducting this research by doing a deep look into federal copyright cases and federal copyright statutes. Examples of these cases are Batiste v. Najm, Morrill v. Stefani, Brown Bag v. Symantec Corp., and Swirsky v. Carey. Examples of these statutes include 17 U.S.C.A. § 106, 17 U.S.C.A § 504, and 17 U.S.C.A. § 102. By examining copyright, this information can suggest how artificial intelligence can be applied to current copyright law and possible loopholes that may need to be filled regarding copyright law. Though music is a specific area of research, legal research into artificial intelligence has broader implications. During these uncertain times as artificial intelligence is newly accessible to many Americans, examining copyright law and artificial intelligence can lead to future groundwork for other issues arising aside from copyright such as plagiarism. Basic groundwork in one area of the law may possibly influence other areas of the law when considering a decision with a similar topic. This research will contribute to creating possible solutions to the issues being created by artificial intelligence as it can provide valuable insight for policymakers and those within the legal community navigating this landscape.

**Keywords:** legal research, artificial intelligence, music

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**Poster Number:** 55

**Title:** Molecular and structural basis of the dual regulation of the polycystin-2 ion channel by small-molecule ligands

**Abstract:** Polycystin-2 (also known as TRPP2, PC2) is an ion channel protein involved in a disease, called Autosomal Dominant Polycystic Kidney Disease (ADPKD). The mutations happening on Polycystin-2 and Polycystin-1 (PC1) lead to ADPKD. The role of PC2 and PC1 in ADPKD pathogenesis is largely unknown, due to the lack of knowledge of the activation mechanism of these proteins. In this study, we find ML-SA1, an agonist of TRPML1, activates the PC2 Gain-Of-Function mutant (F604P). Our data demonstrate multiple ML-SA1 binding sites on PC2 GOF mutant and function regulation on F604P resulting from the ML-SA1 binding, indicating that PC2 potentially can be activated. These results raise some hints of the PC2 activation mechanism and provide important information for future drug development.

**Keywords:** Polycystin-2, Molecular Biology, Academic research

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**Poster Number:** 56

**Title:** Work or Hours? Examining Predictors of Life Satisfaction Among Teachers in Vietnam

**Abstract:** Work overload occurs when individuals feel overwhelmed by workplace responsibilities and challenges. The majority of research examining work overload and life satisfaction among teachers has focused on general indicators such as work hours. This approach may need to be revised to fully understand the impact of work overload on life satisfaction. When evaluating overall life satisfaction, individuals may consider their satisfaction with their family, job, and/or social life. Many factors may increase teachers' work overload, such as adapting to new technology, working with unruly students, adjusting plans to changing systems and procedures, and assessing students. In qualitative and anecdotal evidence, teachers have reported that these demands, more than work hours alone, impact their well-being. However, data on relations between specific job demands and life satisfaction is more limited. This study aims to test the hypothesis that work overload from specific job demands will be associated with decreased life satisfaction above and beyond work hours alone. 1961, participants completed questionnaires including demographic and professional role information and measures of work overload and life satisfaction. Participants reported their average weekly work hours. To test our hypotheses, we conducted multiple regression analyses, including both work overload and work hours, and controlled for age, gender, experience, and grade level(s) taught. We found that work demands, but not work hours, were negatively associated with life satisfaction among teachers in Vietnam. Our findings suggest that above and beyond the quantity of work, the specific experiences and demands of teachers' jobs influence their life satisfaction.

**Keywords:** psychology, teacher well-being, international studies

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**Poster Number:** 57

**Title:** Exploring Prosodic Patterns in Neurodevelopmental Disorders: A Case Series Investigation

**Abstract:** Effective communication relies heavily on the rhythm and melody of speech, known as prosody. Disruptions in prosody are characteristic features of neurodevelopmental disorders such as autism spectrum disorder (ASD) and fragile X syndrome (FXS). Despite studies conducted on quantitative measures of prosodic abnormalities in these populations, a comprehensive understanding of the relationship between qualitative measures and diagnostic predictions remains limited. Method: This study aimed to assess qualitative prosodic assessments' predictive abilities in identifying ASD or FXS compared to typically developing (TD) peers. Four participants (one ASD, one FXS, and two TD children) engaged in natural interactions with caregivers, yielding audio recordings for qualitative and subsequent quantitative analysis. Results: Distinct prosodic patterns emerged among the participants. The ASD participant showed a higher mean F0 but lower SD of F0 compared to TD participants while also exhibiting a higher SD of F0, distinguishing them from the participant with FXS. TD participants displayed wider F0 ranges, and all diagnoses were accurately identified through qualitative impressions. Discussion: Our study identifies a consistent association between higher mean F0 and SD in the participant with ASD, indicative of a more varied pitch, aligning with qualitative impressions. TD participants exhibited a higher SD of F0 and a wider range. The participant with FXS consistently showed lower prosodic values, suggesting distinct prosodic patterns. Conclusion: This study highlights the need to integrate qualitative and quantitative approaches for understanding prosodic abnormalities in neurodevelopmental disorders. Further research should validate these findings in larger, diverse samples and explore their clinical implications.

**Keywords:** Neurodevelopmental disorders, Prosody, Speech-language Pathology

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**Poster Number:** 58

**Title:** A mitogenomic exploration on high-altitude dwelling invertebrates of the Andes

**Abstract:** Investigating invertebrates, such as flatworms or planarias, found at high altitudes and likely adapted to low oxygen environments, holds promise for characterizing neglected biodiversity and evolutionary history. Planarias lack lungs or other complex respiratory systems, with their respiration done by diffusion. However, their biodiversity and adaption to such extreme environments are left uncharacterized. In this study, we collected samples from an unknown planaria from the Ecuadorian Andes near Quito at 2,850 meters above sea level. We isolated the mRNA and sequenced it to obtain a draft transcriptome, including the entire mitochondrial genome as a byproduct. From the mitogenome, we isolated the barcode gene (COX1) and performed a phylogenetic comparison to determine the taxonomic identity of our planaria sample. We found that our sample is a closely related species of the little-known species Amaga expatria found in the Caribbean, a low-altitude locality. In the same transcriptome sample, we found an additional mitogenome belonging to a non-planarian slug species, Deroceras reticulatum. We infer that this mitogenome represents an event of predation of the planaria upon the slug, a common garden slug but invasive species across the planet. Our research highlights the use of massive parallel sequencing methods on species that lack most basic knowledge on their biology such as high-altitude invertebrates of tropical regions, rather than the usually studied DNA-based approaches. Our approach holds promise in discovering more unknown species, high-altitude adaptations, and a genetic database of limitedly studied Andean invertebrates.

**Keywords:** molecular evolution, evolutionary biology, molecular biology

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**Poster Number:** 59

**Title:** Characterization of Rbfox3 Alternative Splicing

**Abstract:** Alternative splicing (AS) is a tightly regulated post-transcriptional process that occurs in the nucleus. Rbfox3/NeuN is a widely expressed neuronal splicing factor of the Rbfox family of RNA-binding proteins. Along with its paralogs Rbfox1 and Rbfox2, Rbfox3 regulates AS of genes involved in neuronal development, and is implicated in the regulation of adult neurogenesis and synaptogenesis. Rbfox3 itself undergoes AS, yielding four isoforms with nuclear or cytoplasmic localizations. In postmortem HIV patient brains, mis-localization of RBFOX3 in the cytoplasm raises the hypothesis that mis-splicing of its targets may contribute to associated neurocognitive defects. Aberrant splicing of tau, a neuronal microtubule-associated protein linked to neurodegenerative diseases, is associated with a group of neurodegenerative disorders termed tauopathies. AS of tau exons 2, 3, and 10 generate six isoforms. Exon 10 inclusion generates an isoform containing 4 microtubule-binding repeats (4R-tau), while exclusion generates an isoform containing 3 repeats (3R-tau). Imbalanced levels of 4R-tau and 3R-tau have been observed in many tauopathies, and Rbfox3 enhances inclusion of tau exon 10. This project aims to unravel Rbfox3 gene regulation complexities by investigating: (1) the differential impact of the four common Rbfox3 isoforms and three novel isoforms on tau exon 10 AS, (2) the regulatory roles of other neuronal splicing factors (Mbnl2, Ptbp2, Nova1, and Nova2) on tau exon 10 splicing, and (3) the potential autoregulation of Rbfox3 splicing. Through this exploration, we seek to deepen our understanding of the intricate molecular mechanisms underlying alternative splicing in the context of neuronal function and neurodegenerative disorders.

**Keywords:** Rbfox3, alternative splicing, neurodegeneration

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**Poster Number:** 60

**Title:** Athletics' Fit Within An Academic Program

**Abstract:** This case study investigated one NYS high school's school based athletic program (SBA). Research sought to explore ways SBA were situated within a wider academic program and school community, and test a theoretical proposition that indicators of social capital, as described by Coleman (1961; 1966; 1988) and Putnam (1993; 2000), may be useful in such a case based exploration. Interviews were conducted with the principal, athletic director, one teacher-athletic coach, one former teacher-athletic coach /event staff member, one admin-athletic coach, and two student athletes. Other data sources included observations, school documents/media, and school-managed twitter accounts. These data points were triangulated, analyzed using deductive coding as directed by (Yin, 2016; 2018). Other coding methods included structural, focused, and value coding, as directed by Saldaña, 2013). Analysis revealed findings connected to Coleman's (1988) "general construction of social capital," (Coleman, 1988 p. 98) and Putnam's conception of the "dark side of social capital" (2000). They included (1) Obligations, expectations, and trustworthiness in structures; (2) Information channels; (3) Norms and effective sanctions (Coleman, 1988 p. 98). Additional findings included; (4) Community cohesion, and (5) Dark Capital: Alienation & Elitism.

**Keywords:** school based athletics', interscholastic sports, academic programs,

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**Title:** Former Student-Athlete's Experience with Strength Training and Self-Efficacy of Sport Skill Performance

**Abstract:** The aim of this pilot study was to explore former NCAA Division 1 female student-athlete's experience of a strength and conditioning program and the result this had on self-efficacy of sport skill performance. This case study comprised of four participants that have prior collegiate strength training program experience. Data was collected using semi-structured interviews and a reflective journal; the transcribed interviews were analyzed using qualitative content analysis. From the analysis, four themes emerged: connections of strength training to sport skill performance, confidence in oneself, injury prevention program, and motivation to perform. From the players' perspective, care needs to be taken to explain the purpose of an exercise and the benefit it will have for a play performance. Other factors that play an important role in a strength training program are team motivation, individual goal setting, bonding, and communication with the strength coach, as all these items appear to be fundamentals of coaching.

**Keywords:** self-efficacy, skill performance, sports performance, strength training

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**Poster Number:** 62

**Title:** Is it better for your mental health to think more rationally or less irrationally?

**Abstract:** Is thinking more rationally or less irrationally better for your mental health? That's the question this research asked in a sample of 550 undergraduates. Method. We measured rational and irrational thinking with the 24-item Attitudes and Beliefs Scale-2 (DiGiuseppe et al., 2020), and nine measures of psychological problems (e.g., depression, paranoia, alcohol and drug problems). Hierarchical regression examined the incremental validity of irrational and rational beliefs above and beyond covariates and personality dysfunction. Results. After controlling for covariates, we found that measures of rational an irrational thinking accounted for an additional 1 to 8 % of variance in mental health outcomes. Irrational thinking was a significant predictor of depression, social anxiety, disordered eating, psychosis, and paranoia. After controlling for covariates and irrational thinking, rational thinking accounted for significant increments of variance in depression, disordered eating, and hostility. A measure of the balance of irrational and rational thinking (irrational minus rational) was a significant predictor of seven of nine outcomes. Conclusions. Irrational beliefs were a significant predictor of more outcomes, but rational beliefs still played a role in some outcomes, and the balance of irrational and rational thinking was a strong predictor. Our measures of thinking were better at predicting internalizing than externalizing problems; a finding which should be replicated. Future research should also include outcome measures of psychological well-being (happiness, quality of life, subjective well-being) to determine if the same or different pattern emerges when compared to using psychological problems as outcomes.

**Keywords:** Irrational thinking, rational thinking, personality

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**Poster Number:** 63

**Title:** Faculty Perceptions of CHAT GPT

**Abstract:** CHAT GPT and other generative Artificial Intelligence programs keep growing. Students frequently use them, but detecting AI usage is a challenge. When faculty build the use of CHAT GPT into the assignment, does it become a research assistant? The focus of this research is to determine how faculty see this emerging tool. Two faculty at a small, one campus college on the East Coast in a large metropolitan area take part in this pilot study that is in progress. One professor teaches a freshman writing class, and one professor teaches a sophomore writing class. Data was collected through two interviews. This study investigates how faculty incorporates CHAT GPT into their assignments. The data is analyzed via narrative analysis. Findings inform faculty about how to use CHAT GPT during these early stages of the application. The study contributes to the field as a starting point for faculty in applying this tool since higher education faculty may lack direction and experience in how CHAT GPT may be utilized as a learning tool. The study calls for further research to introduce more options for positive uses of CHAT GPT. Key words: Artificial Intelligence, CHAT GPT, writing instruction, writing support, grammar support, writing assignments, writing, adult education, adult learning, faculty development, faculty perceptions, faculty preparedness, professional development

**Keywords:** faculty development, faculty perceptions, writing instruction

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**Title:** Impacts of Rejection Sensitivity on College Students with ADHD

**Abstract:** Rejection Sensitivity ( RS) is a tendency, disposition, or learned response in which an individual has a disproportionate emotional response to experiences of real or percieved rejection or criticism. RS is a trait has been linked to ADHD and can influence how individuals with ADHD experience interpersonal interactions and affect how they approach social situations. Research on how rejection sensitivity affects young adults with ADHD in the post-secondary educational environment is limited. This study will investigate experiences of rejection sensitivity in undergraduate students with and without ADHD. Study participants will complete an online survey that includes an established ADHD self-report screening to examine occurrence of ADHD traits (ASRS-v1.1), as well as the Rejection Sensitivity Questionaire for Adults (A-RSQ) to determine their sensitivity to real or perceived criticism. Additional survey items will be added to investigate experiences of rejection or criticism specific to the post-secondary environment, as well as qualitative questions that will provide greater understanding on individuals' experiences, how they cope with rejection sensitvity, and recommendations for delivery of feedback in a way that works for them. The findings of this study will provide insight into discrepancies in rejection sensivity for undergraduate students with and without ADHD, experiences of undergraduate students with ADHD, and recommendations for professors, advisors, and other university professionals on how to best support students with ADHD who experience rejection sensitivity.

**Keywords:** ADHD, Rejection Sensitivity, Undergraduate Students

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**Poster Number:** 65

**Title:** Investigating science teachers' perceptions of teaching scientific literacy skills within their curricula

**Abstract:** Rapid growth of technology and increased globalization underscore the need for scientific literacy to be taught in grades K-12 with greater efficacy. Though the Next Generation Science Standards were intended to promote development of skills such as explaining phenomena, interpreting graphs, and evaluating veracity of information, students are still transitioning to college and careers with deficiencies in such skills. This is compounded by the fact that science teachers often feel pressured to "cover" a breadth of curricular topics. I argue that students are exposed to too many topics to afford the time and flexibility in pedagogical practices required to foster true scientific literacy. Thus, it is worthwhile to investigate science teachers' understanding of scientific literacy and their teaching practices. This pilot study aims to gauge practitioners' understanding of scientific literacy and to monitor teaching practices to determine how much instructional time is devoted to the development of scientific literacy-building skills. Three veteran, secondary science teachers from one, urban, private school on the East Coast are participating in the study, which includes initial and closing interviews, weekly journal entries, and classroom observations. Initial interviews have been conducted, and the data collected will be coded in several stages and examined using comparative thematic analysis. I will look for common themes and contradictions, comparing data collected among participants and statements made by participants to deepen understanding of what the teachers do and believe. The findings may reveal patterns regarding scientific literacy interpretations and instruction that will guide the direction of future investigations.

**Keywords:** Scientific literacy, secondary science education, curriculum

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**Title:** The Effects of Teacher Mentorship

**Abstract:** Research on mentoring demonstrated that it can have a positive impact on educators, and the absence of mentoring, along with other factors, can lead to higher turnover rates. This qualitative autoethnography investigates my own teaching practices as a special education teacher in an elementary school. The purpose of this self-study is to identify patterns of my growth as a teacher by having a mentor throughout the school year. In this pilot study, I investigate how I implement the feedback that was given to me and what influence (if at all) the mentoring program has on my teaching practices. In order to do this, I will examine my lesson plans, my own teaching practices, teacher evaluations, and mentor sessions. The data from the meetings with my mentor demonstrates my goal-setting by answering reflective questions after each session. In addition, I analyze my teaching methods by examining my lesson plans and my own practices to see if and how I reached my goals and how I implemented my mentor's feedback. The data is analyzed for common themes using thematic analysis with a word or a phrase as a unit of analysis. Through the process of coding involving line-by-line coding, I generate themes and elevate them to categories. This is a study in progress. The preliminary results demonstrate areas of my growth and my patterns of internalizing my mentor's feedback.

**Keywords:** teacher mentorship, special education, elementary

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**Title:** Insecure Attachment's Influences on Adolescent Depression: A Mediation Analysis

**Abstract:** This study explores self-compassion, self-efficacy, and trait resilience as mediators between insecure attachment (attachment anxiety and attachment avoidance) and depression. The sample was composed of 215 American teenagers. Using bootstrapping approach, three specific mediation paths were examined simultaneously: (1) insecure attachment influences depression through self-compassion, (2) insecure attachment influences depression through trait resilience, and (3) insecure attachment influences depression through self-compassion, self-efficacy, and trait resilience in sequence. The three mediators could explain 63% of attachment anxiety's influence on depression and 59% of attachment avoidance's influence on depression. Practical and theoretical implications are discussed.

**Keywords:** counseling, insecure attachment, depression

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**Title:** New COVID-19 Vaccine Hesitancy Among College Students

**Abstract:** Objectives: On September 12, 2023, the Centers for Disease Control and Prevention updated the COVID-19 vaccine recommendations for the public aged 6 months and older to receive the updated COVID-19 vaccine for 2023-2024. The objective of this study was to evaluate and assess the vaccine hesitancy of the new COVID-19 vaccine among college students on a University campus. Methods: On September 21, 2023, the research team participated at the University's Wellness Fair to promote and educate the student body on the COVID-19 vaccine. A 7-item, voluntary, anonymous online survey was administered to assess the vaccine hesitancy for the new COVID-19 vaccine among the student body. The survey included questions to collect data on basic demographics (age, gender, race, academic rank, college) and the question, "Will you get the newly approved COVID-19 vaccine?" If the participants answered "no" or "not sure" , they were lead to a conditional question to assess for the reason for hesitancy. Descriptive statistics were used for this study. IRB approval was recevied from the University. Results: Seventy-five students responded to the survey. The median age was 18 years old with a range of (17-26) years old. Sixty-one (81%) participants identified as female. Most participants were Asians at 32% (24), followed by Black or African American and White at 25.3% (19) each. Freshmen accounted for 44% (33) of the participants, followed by 22.7% (17) of sophmores, 18.7% (14) of graduate students, 10.7% (8) of juniors, and 4% (3) seniors. Students belonged in the following programs of study: health sciences 36% (27), liberal arts 36% (27), professional studies 16% (12), business 8% (6), and education 4% (3). Out of the 75 respondents, 54 (72%) students responded "yes", 13 (17.3%) students responded "not sure", and 8 (10.7%) responded "no" to getting the new COVID-19 vaccine. Of the 8 students who responded "no", 4 (50%) students are studying health sciences, 3 (37.5%) liberal arts, and 1 (12.5%) business. Top reasons for vaccine hesistancy include the following: adverse effects of vaccine 33.3% (7), vaccine fatigue 33.3% (7), belief that the vaccine is not effective 23.8% (5), belief that COVID-19 infection would be mild 19% (4), and belief that COVID-19 infection would not occur, even if unvaccinated 9.5% (2). Conclusions: Results of this survey revealed a 28% rate of vaccine hesitancy for the new COVID-19 vaccine among college students at this University. Vaccine hesitancy was reported in students studying all majors, including health sciences. The top three reasons for vaccine hesistancy were adverse effects of the vaccine, vaccine fatigue, and belief that the new vaccine is not effective. Limitations of this study include a small number of participants from a single University campus. Results from this study may help inform future efforts to improve vaccine messaging and uptake among college students.

**Keywords:** Vaccine hesitancy survey, Health concerns, Pharmacy

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**Title:** Role of novel benzimidazole derivatives on microglia activation

**Abstract:** In neurodegenerative diseases, such as Alzheimer's disease and Multiple Sclerosis, microglia are particularly vulnerable. Moreover, neuroinflammation inhibits the development of the homeostatic microglia cells (anti-inflammatory microglia) and triggering formation of reactive, unstable microglial cells (pro-inflammatory microglia), leading to further disease progression (Xu et al., 2020). Bone Morphogenetic Proteins (BMPs), members of the Transforming Growth Factor-β superfamily, have a proven role in regulating cellular differentiation, proliferation and apoptosis (Wagner et al., 2010). Stimulation of microglial cells by BMP4 induces activation of pro-inflammatory microglia and antagonizing BMP receptors reduces neuropathic pain in young adult Sprague-Dawley rats (Lui et al., 2022). In this study, we are investigating the effect of BMPs and chemically related compounds composed of a novel class of benzimidazole derivatives on microglia with the aim of determining how this effect may correlate with a role for these cells in neurodegenerative diseases. Different BMPs and two novel benzimidazole derivatives (B-19 and B-20) were used to stimulate primary microglia isolated from the brains of young adult Sprague-Dawley rats. B-19 and B-20 stimulated strong increases in cell viability in the primary microglia cultures, demonstrating proliferative effects on microglia at low concentration (0.1 μM) showed by cell viability assays. The same concentration was used to treat microglial cultures and cell lysates were collected at different time points for analysis. Western blot data showed that B-19 and B-20 decrease the phosphorylation of non canonical BMP signaling pathways such as pPI3K, pERK and pP38. Together, this data suggests that B-19 and B-20 may act to generate homeostatic microglia cells and inhibit their formation toward the unstable form.

**Keywords:** Pharmacology, neuroscience, novel compounds

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**Title:** Self-liquifying Tablet as Stress-Relief Supplement

**Abstract:** A eutectic mixture (EM) is a specific composition of at least two solid components which, upon pressurized contact, produces a phase change from solid to a liquid at a certain temperature. The eutectic mixture has a melting point lower than those of the constituents, in general, below ambient temperatures. The main objective of this study is to develop a tri-layer tablet that liquefies by applying pressure with one's fingers without the addition of water. In this study, two solids, menthol and camphor, were used in a 1:1 w/w ratio, with diluent and fragrance powders. To avoid the premature melting, menthol and camphor were separated by the middle layer filled with the diluent and fragrance powders. This tri-layer tablet with a diameter of 6.5 mm and width of 3 mm was prepared by using a single-unit manual tablet press. The self-liquefying tablets were hard enough such that each tablet came out intact but easily crushable when rubbed between fingers/palms. The liquified product was then liquefied and absorbed directly into the area of contact. Menthol together with camphor creates a cooling sensation, and the soothing scents of the fragrances can provide calming effects for stress-relief, possibly beneficial for insomniacs. Simultaneously, the tablet can also precisely provide spot-treatment of dry, agitated skin. The prototype is a small self-liquifying solid formulation that is simple to use, convenient to store and transport, with improved shelf-life and multi-purpose use.

**Keywords:** Eutectic mixture, Self-liquefying tablets, Menthol

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**Poster Number:** 71

**Title:** Intimate Partner Violence (IPV) Training Effectiveness in Mount Sinai Hospital Staff and Providers

**Abstract:** Intimate partner violence (IPV) is a pattern of abuse or aggression that occurs in a relationship. People who fall victim to IPV suffer from long-term trauma caused by the abuse. These people present themselves at an emergency department in a hospital setting. However, lack of training in IPV related trauma-informed care limits healthcare professionals in assisting IPV patients. Recently, NYS policies have encouraged hospitals to require all hospital staff and medical providers to screen IPV patients and actively be aware of this dire public health issue. The Mount Sinai Sexual Assault and Violence Intervention (SAVI) team created a training program for Mount Sinai residents, providers, and staff to increase knowledge on IPV and trauma-informed practices, increasing awareness of SAVI as a listed referral for victims and/or survivors, and increasing overall understanding the utilization of the screening process including specific tools to address IPV. The purpose of this project was to evaluate the SAVI training program. Pre-post surveys and feedback forms were used to assess the effectiveness of the training. Participants high scores on the postsurvey compared to scores on the presurvey and responses to the feedback forms suggested that training medical professionals in understanding IPV, learning how to use the IPV screening tool when meeting with patients, and utilizing useful services like SAVI is effective in increasing competence when caring for patients who may have experienced serious trauma.

**Keywords:** intimate partner violence, training, hospital staff

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**Title:** The Impact of Mutated Receptors on Downstream Specificity

**Abstract:** Bone Morphogenic Proteins (BMPs) belong to a large family of signaling proteins that demonstrate diverse functions in almost every tissue in the body. These growth factors play a role in a wide array of processes during the earliest stages of development and throughout life. BMPs bind to a tetrameric receptor complex consisting of two type I and two type II receptor subunits and represent the only class of serine/threonine transmembrane kinases identified. Despite a vast body of literature concerning BMPs, it remains unclear how BMPsignaling impacts the canonical and non-canonical signaling pathways downstream of BMP receptor activation. This study will utilize a fluorescence assay to investigate BMP receptor specificity of signaling outcomes. First, downstream responses of canonical (transcription-based) or non-canonical (cytoskeletal-based) were established using mock-transfected C2C12 cells by examining the phosphorylation (p) of Smad andPI3K, respectively. Stimulation of Smad-dependent pathways results in translocation of pSmad to the nucleus, whereas activation of PI3K-dependent pathways is measured by increases in pPI3K at the plasma membrane. BMP receptor subunit variants, such as kinase-dead type I receptor or a type II receptor containing a point mutation at the putative PI3K binding site, transfected into C2C12 cells are expected to inhibit canonical and/or non-canonical pathways. This data will help to determine the specificity of downstream signaling choice by distinct BMP receptor subunits. Moreover, using this assay to explore the responses of a newly discovered small molecule BMP receptor agonists may identify biased agonists among this exciting new class of bioactive small molecules.

**Keywords:** transfection, pharmacology, BMPs

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**Title:** Medication Use Evaluation of Ciprofloxacin at Nassau University Medical Center

**Abstract:** Ciprofloxacin is an antibiotic associated with many safety concerns and high resistance rates. In 2020, resistance rates in the United States for fluoroquinolone-resistant Escherichia coli and Pseudomonas aeruginosa reached 35.2% and 15.2%, respectively. FDA safety warnings for ciprofloxacin include tendinopathy and tendon rupture, worsening of myasthenia gravis, CNS side effects, aortic aneurysm and rupture, hypoglycemic coma, peripheral neuropathy, and C. difficile. Despite these deterrents, ciprofloxacin use increased at Nassau University Medical Center (NUMC) in January 2023. The purpose of this study is to evaluate the use of ciprofloxacin and determine opportunities for antimicrobial stewardship intervention at NUMC. This was a retrospective chart review of adult patients 18 years and above admitted to NUMC who received at least 3 ciprofloxacin doses in the month of January 2023. The following data were collected by reviewing the EMR: age, sex, serum creatinine, penicillin allergy, PMH pertaining to fluoroquinolone safety warnings, microbiology data including the presence of fluoroquinolone resistance within the past 6 months, ID consult, administration data of ciprofloxacin, and indication. Majority of ciprofloxacin use was indicated for IAIs and UTIs and was not recommended by ID since only 10.3% had an ID consult. Based on PMHs pertaining to FDA warnings, ciprofloxacin use was not an optimal antibiotic in 35.9% of patients. Additionally, medication errors were identified in 7.7%. Results of this study revealed opportunities for NUMC's antimicrobial stewardship team to intervene with ciprofloxacin use and will be shared with the committee to discuss next steps.

**Keywords:** Infectious diseases, medication evaluation, pharmacy

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**Poster Number:** 74

**Title:** "The Brain Game: Evaluating the Impact of an Innovative Theater Game on Healthcare Professional bias towards Patients of Marginalized Groups"

**Abstract:** An implicit bias is an attitude or prejudice that can affect a person's behavior subconsciously. In healthcare, these implicit biases held by healthcare professionals can negatively impact the treatment their marginalized patients receive. Previous research has found that "experiential" learning methods, such as interactive theatre, have increased retention of information over other kinds. Novel training methods can be utilized to raise awareness of implicit bias and self-efficacy of bias-reducing behaviors among healthcare professionals. Through a 60-minute theatre game session featuring interactive exercises and group discussions, participants were educated on what implicit bias is, how it affects patients and ways they can prevent negative patient-provider interactions based on bias. Pre- and post-participation surveys were distributed to assess changes among the group in empathy towards patients, racial attitudes and their willingness to practice behaviors to reduce bias, like "checking their bias at the door". Data showed that participants were influenced when it came to awareness of implicit bias and willingness to practice bias-reducing behaviors, but no significant conclusions could be drawn about influencing their empathy towards patients. This study demonstrates the effectiveness of novel training methods in changing the behavior of healthcare professionals and improving healthcare conditions for marginalized patients.

**Keywords:** Healthcare professionals, implicit bias, theatre-based training

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**Poster Number:** 75

**Title:** Investigation of sensory disturbances associated with Long COVID infection

**Abstract:** In the wake of the COVID-19 pandemic, a growing number of patients are experiencing persistent symptoms, commonly referred to as "long COVID," even after their initial recovery. These symptoms often include neurological disturbances such as migraines and neuropathy, which are closely linked to the nerves of the peripheral nervous system that transmit sensory information from the periphery to the central nervous system. The cell bodies of these sensory neurons are found bundled together in the Dorsal Root Ganglia (DRGs) of the spinal cord. This study seeks to investigate the presence and distribution of important markers for SARS CoV2 infection, ACE2 and TMPRSS2, at different regions of the adult mouse spinal cord at the protein and mRNA level, with the goal of shedding light on the populations of sensory neurons that are susceptible to infection by SARS CoV2. To meet this objective, tissue samples were collected from the cervical, thoracic, and lumbar sections of the spines of adult mice. Following isolation, the RNA was extracted from the tissue, and cDNA was synthesized. The cDNA was then used in qPCR to investigate the presence of mRNA transcripts of the markers of interest. To quantify the protein expression levels of ACE2 and TMPRSS2, the tissue samples were embedded in paraformaldehyde and cryosectioned. The sections were labeled with antibodies against ACE2 and TMPRSS2. By conducting this study, we aim to contribute to the growing body of knowledge on long COVID and the associated sensory disturbances.

**Keywords:** Long COVID, sensory disturbances, DRG

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**Title:** Soy Protein Isolate Nanoparticles for Improving the solubility of Poorly soluble drugs

**Abstract:** Nanoparticles (NP) have been widely studied and utilized in the pharmaceutical field, aiming to improve drug solubility, stability, and skin permeability. Soy protein isolate (SPI) has gained attention for its availability, affordability, and environmental friendliness. The two main protein components in SPI are glycerin and beta-conglycinin, representing approximately 70% of the total soybean protein. Proteins in SPI fold when dissolved in water, forming a spherical structure with a hydrophobic center and a hydrophilic outer layer, which is stabilized by hydrophobic interactions. The objective of this study was to increase the aqueous solubility of poorly water-soluble drugs via SPI nanoparticles prepared through temperature/pH modification followed by de-solvation techniques. In this study, paclitaxel, a BCS Class IV drug with poor solubility and permeability, was selected as a model drug. The SPI nanoparticles carrying paclitaxel at 1:20 w/w drug to polymer ratio were prepared to perform basic characterization study including encapsulation efficiency using, particle size distribution, and zeta potential. The results indicated a ten-thousand-fold increase when compared to the aqueous solubility of free paclitaxel in water, i.e., 0.1µg/mL, and the z-average particle size was found to be 200 nm with a PDI of 0.273. Based on the findings, it was found that SPI can be employed for variety of applications for enhancing the solubility of poorly water-soluble drugs.

**Keywords:** Soy Protein Isolate, Paclitaxel, Nanoparticles

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**Title:** Teaching Clinical Documentation to Student Pharmacists: A Comparison of SOAP Notes and Consult Notes

**Abstract:** This study investigated the effectiveness of teaching clinical documentation to student pharmacists using SOAP notes versus consult notes. Initially developed for physicians, SOAP notes are extensively used in pharmacy education but may not be the most efficient clinical tool. Consult notes offer a more concise way for pharmacists to communicate medication-related recommendations to prescribers. The study compared student performance, confidence levels, preferences, and completion times for both types of notes in a P3 clinical documentation course. Students wrote SOAP notes for various patient cases throughout the semester, with faculty-provided feedback. Consult notes were introduced for specific cases, focusing on scenarios like diabetic ketoacidosis (DKA) and alcohol withdrawal syndrome (AWS), which are often encountered in emergency departments. Rubrics were used to assess both SOAP and consult notes, and students' perceptions were gathered through surveys. Results showed that students scored higher on SOAP notes than consult notes across all cases studied. They also reported higher confidence levels in writing SOAP notes, although confidence in consult note writing improved throughout the semester. Despite taking longer to complete, most students perceived SOAP notes as more effective, efficient, and easier to complete. Students preferred SOAP notes and felt more confident in their writing, likely due to familiarity and its influence on their final grades. However, their ability to write SOAP and consult notes improved. The study suggests that incorporating consult note writing into the curriculum could enhance students' learning experiences and make it a more effective tool for future pharmacists.

**Keywords:** Clinical documentation, Note writing, Pharmacy Curriculum

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**Title:** Direct targeting of Histone Deacetylases is an effective therapeutic approach for pediatric Neuroblastoma

**Abstract:** Neuroblastoma (NB) is the most common extra-cranial solid tumor in childhood and the most common in the first year of life, with a median age at diagnosis of 18 months and 90% of cases diagnosed by ten years of age. Recent studies show that a disbalance of histone acetylation and deacetylation, mediated by histone acetyltransferases (HATs) and histone deacetylases (HDACs), may drive tumorigenesis. Histone acetylation plays a crucial role in the epigenetic regulation of gene expression and is controlled by the balance between HDACs and HATs. HDAC inhibitors are reported to induce cell cycle arrest, differentiation, and cell death in different cancers. In the present study, we used a synthetic benzamide derivative HDAC inhibitor (BHDACi), which potently and selectively inhibits class I and IV HDAC enzymes. The BHDACi is shown to promote histone hyperacetylation to activate the expression of specific genes, leading to subsequent inhibition of cell proliferation, terminal differentiation, and apoptosis in cancers. We observed that BHDACi significantly inhibits cell proliferation and colony growth in different MYCN-amplified and -non-amplified NB cell lines in a dose-dependent manner. We also developed an NB 3D spheroid tumor model, which recapitulates the in vivo solid tumor growth patterns, and found that BHDACi significantly inhibits the growth and size of 3D spheroid tumors in a dose-dependent manner. These results indicate the role of HDACs in NB growth and emphasize that developing direct HDAC targeting strategies is a practical therapeutic approach for NB. Our future studies will focus on elucidating additional mechanisms underlying the role of HDACs in NB. We will further combine epigenetic inhibitors with current chemotherapy drugs to develop effective and clinically amenable therapeutic strategies for children battling with NB

**Keywords:** Neuroblastoma, HDACinhibitors , pediatric studies

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**Title:** Impact of ChatGPT Use on Achievement of Curriculum Outcomes and Entrustable Professional Activities (COEPA) during Advanced Pharmacy Practice Experiences (APPEs)

**Abstract:** Objective: To assess the impact of ChatGPT on student achievement of curriculum outcomes and entrustable professional activities (COEPA) as outlined by American Association of Colleges of Pharmacy (AACP). Methods: A 20-question electronic survey was distributed to pharmacy students in the Class of 2023 and 2024 at a NYC college. The survey evaluated the impact of ChatGPT on COEPA educational outcomes and student perceptions of the technology using Likert Scale responses. Results were analyzed using descriptive statistics. IRB exemption was obtained, and participation was voluntary and anonymous. Results: A total of 69 students participated in the survey. 44% (17/39) had used ChatGPT during their advanced pharmacy practice experience (APPE) rotations. 82% (14/17) of students agreed or strongly agreed that ChatGPT has helped them find, analyze, and integrate foundational knowledge of medications. 65% (11/17) agreed or strongly agreed that ChatGPT has helped them engage and contribute as a healthcare team member. 82% (14/17) agreed or strongly agreed that ChatGPT has positively impacted their approach to work and research habits during their rotations. 89% (15/17) agreed or strongly agreed that they will use ChatGPT on future APPEs and in professional practice. 82% (14/17) would recommend ChatGPT to other pharmacy/healthcare students on their rotations. Conclusion: The use of ChatGPT by pharmacy students during their APPE rotations demonstrates a potential benefit in student achievement of COEPA outcomes across all 3 domains during APPEs. It may be of interest to consider incorporating ChatGPT and other AI technologies during learning activities to help foster such benefits.

**Keywords:** pharmacy education, student perceptions, artificial intelligence

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**Title:** DEVELOPMENT OF BENZIMIDAZOLE-AMIDES AS SMALL MOLECULE MODULATORS OF BMPR and TGFb SIGNALING PATHWAY

**Abstract:** The activation of Bone Morphogenic protein (BMP) signaling in the treatment of bone fractures and wound healing after major surgeries has been demonstrated with the use of recombinant BMPs (rBMPs). The Yoganathan lab recently reported the novel synthesis of natural product analogs as potent BMP agonists. The novel class of indoyl-benzimidazoles fully activated the BMP receptor, with results similar to those seen in rBMPs. Attempts are being made to further study the indoyl-benzimidazole core's structure-activity relationship (SAR). Here, structural modifications are made by introducing an amide linker between the benzimidazole and indoyl or aryl substituents. The benzimidazole-amides are designed from commercially available precursors, and a library of compounds was established for evaluating the SAR. We have utilized a convenient synthetic methodology to afford a library of benzimidazole-amides. All compounds are fully characterized using NMR and LCMS. The purity of these analogs was further confirmed using RP-HPLC. The biological activity of these molecules will be studied using standard cell viability assays and enzyme inhibitory assays. We have successfully synthesized a library of eight new compounds based on aryl and indoyl carboxylic acids. Benzoyl and indoyl groups provide structural diversity and a way to modulate physio-chemical properties to assess the SAR of the benzimidazole-amide scaffold. We have synthesized a series of benzimidazole-amide derivatives with potential therapeutic activity. The amide coupling reaction and purification techniques have been optimized to provide the desired product in high purity. Further structural modifications using varied commercially available precursors will be studied to make way for a broader library of derivatives to evaluate an in-depth SAR study.

**Keywords:** BMPR, benzimidazole-amide, structure-activity relationship

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**Poster Number:** 81

**Title:** Transforming Drug Delivery: Embracing the Power of Lipid-based Carriers for Enhanced Solubility and Lung Deposition

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**Abstract:** Nanostructured lipid carriers (NLCs) represent a groundbreaking innovation in drug delivery systems, offering a promising path for enhancing treatment of various diseases, including lung cancer. Lung cancer, a complex and very devastating disease, remains a global health concern that results in very high morbidity and mortality. A third-generation tyrosine kinase inhibitor, ponatinib, was approved by the FDA for treatment of chronic myeloid leukemia treatment. Ponatinib, however, was found to be highly potent against different cancers, such as lung cancer. While effective, ponatinib has many limitations such as poor solubility, low bioavailability, limited drug flow into tumor sites, and the possibility that the drug only affects the surrounding organs/body, and not the targeted tumor sites. To address these challenges, we explored different formulation approaches, with NLCs being the favorite and becoming a potential solution to overcome these limitations. The proposal intended to formulate ponatinib-loaded nanostructured lipid carriers (Pona-NLCs) for localized lung delivery by inhalation delivery and explore its safety and therapeutic potential against lung cancer. The Pona-NLCs formulation was developed by melt-emulsification and ultrasonication techniques, and was subjected to evaluation for particle size, PDI, zeta potential, and % entrapment efficiency. The outcomes presented were 9.02 nm, 0.443, 11.6mV, and 94%, ($\sigma$=0.206) respectively for the first trial. The formulation was then tested for aerodynamic parameters through a next generation impactor (NGI), and findings revealed favorable outcomes. Current research revealed the successful development of Pona-NLCs as a novel dosage form for the safe and effective delivery of ponatinib in lung cancer.

**Keywords:** Pharmacology, cancer research, treatment

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**Poster Number:** 82

**Title:** Female C57BL/6 mice exhibit less susceptibility to fructose alone and in combination with high-fat diet induced non-alcoholic fatty liver disease

**Abstract:** Non-alcoholic fatty liver disease (NAFLD) is the most common chronic liver disease affecting one third of the population worldwide which transitions to non-alcoholic steatohepatitis (NASH) if remains untreated and eventually to liver cancer. High fat has been a well proven diet in inducing fatty liver and related metabolic syndrome in rodents and humans. Recently, consumption of fructose alone or in combination with high fat diet has been drastically increased worldwide reflecting increased fatty liver disease prevalence. Despite numerous reports on sexual dimorphism and NAFLD, understanding of sex specific differences in NAFLD still remains inadequate. Therefore, to untangle this puzzle current study was designed where male and female C57BL/6 mice were fed either fructose alone or high fat or combination of both for 22 weeks. Excitingly, female mice liver histology-H&E staining results showed protection against NAFLD on high fat as well as high fat plus fructose diets compared to male mice. NAFLD activity score (NAS), steatosis and ballooning score validated histology results. Moreover, female mice showed protection against weight gain and insulin resistance on fructose alone, high fat alone and in combination with fructose diet compared to male mice despite similar food consumption. This finding clearly suggests possible sex specific differences in dietary metabolism. Furthermore, NAFLD specific liver protein expression supported histology results. Collectively, based on the obtained results it can be concluded that female mice showed protection against NAFLD compared to male mice. However, further study is needed to delineate precise mechanism involving sex specific difference in metabolism.

**Keywords:** NAFLD, Pharmacology, Metabolism

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**Title:** Advancements in Gankyrin Targeting: Enhancing Anti-Proliferative Activity and Binding Affinity Through Novel Small Molecule Derivatives

**Abstract:** Gankyrin, initially identified as an oncoprotein in hepatocellular carcinoma, has more recently been found to be overexpressed in various cancer types. Its oncogenic properties stem from interactions with tumour suppressor proteins, transcription factor regulation, and modulation of signalling pathways. Gankyrin's ability to decrease levels of tumour suppressor proteins, such as Rb and p53, emphasises its significance in cancer progression. The small molecule inhibitor cjoc42, though the first of its kind, exhibited limited anti-proliferative activity against gankyrin-overexpressing cancer cells. Previous work from our group has demonstrated that modifying the various functional groups of cjoc42 has improved the scaffold's anti-proliferative activity as well as its ability to bind gankyrin. Specifically, replacement of the triazole with an amide bond and reducing the distance between aryl groups increased anti-proliferative activity gankyrin binding. Therefore, this work focuses on utilising an amide-linked heterocycles as novel cjoc42 derivatives to improve gankyrin binding and anti-proliferative activity.

**Keywords:** cancer, medicinal chemistry, pharmacy

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**Title:** Stabilizing the Signal from BMP-Specific Gene Transcription

**Abstract:** Bone Morphogenetic Proteins (BMPs) are powerful morphogens that act through numerous intracellular signaling pathways, leading to changes in gene transcription. Exogenous compounds that stimulate BMP signaling pathways would also be expected to regulate BMP-specific transcription. In collaboration with the SJU Yoganathan lab, the Perron Lab has recently reported that a series of newly synthesized benzimidazole compounds stimulate intracellular signaling in a BMP receptor-dependent manner. In the past year, we have successfully established a transiently transfected reporter system to enable the rapid screening of novel compounds for transcriptional regulation of BMP-related genes. Reporter plasmid pGL3 BRE luciferase (BRE Luc), containing a BMP Response Element (BRE), was used to detect BMP-specific transcription. The BRE Luc reporter system generates a luminescent signal when BMP-dependent transcription factors are activated and bind to the BRE segment. This study aims to transition to stable transfection in C2C12 cells, adding reproducibility to this highly sensitive cell-based assay for rapid detection of BMP activity through luciferase expression. Employing calcium-phosphate-based transfection methods, the BRE reporter plasmid will be stably delivered to C2C12 BRE host cells. Efficient delivery and integration of the BRE Luc reporter plasmid via lentiviral transfection will establish a stable cell line for consistent detection of BMP activity. The shift to the lentiviral transfection method promotes high transduction efficiency, stable integration, and, in effect, reliability and consistency. Data generated by the BRE Luc stable cell line will help efficiently identify BMP-like candidates, providing valuable structure/function information for further characterization.

**Keywords:** Pharmaceutical Sciences, Bone Morphogenetic Proteins (BMPs), Stable Transfection

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**Title:** BUG OFF Instagram for Infectious Diseases NAPLEX Prep

**Abstract:** UG OFF (Better Use [of Antibiotics] Guards Ourselves, Friends, and Family) is a campus initiative founded by two Infectious Diseases faculty at St. John's University College of Pharmacy and Health Sciences, Drs. Yumi Lee and Nicole Bradley. The mission of BUG OFF is to promote and elevate antibiotic stewardship across the college campus. One goal and strategy to reach and connect with PharmD students is by establishing an Instagram account to educate on infectious diseases (ID). The purpose of this project is to develop an Instagram for BUG OFF and help PharmD students review ID material while preparing for NAPLEX. Three P-4 pharmacy students were recruited to take on this venture. A survey was conducted among P-4 pharmacy students in the ID elective in Spring 2023 and Instagram was identified as the preferred social media platform. To identify the topics to include and types of content to deliver, the team reviewed the 2023 Rx Prep Book and existing ID Instagram accounts (@idstewardship, @apothecademy) for inspiration. The team decided on 32 ID topics and developed a project manager to organize and oversee our project. Based on our timeline, we plan on introducing a new topic on a weekly basis with the following schedule: Monday and Thursday: trivia question followed by rationale, Tuesday and Friday: miscellaneous content such as memes, fun fact, myth busters, mnemonics, and puns, Wednesday: review of brand and generic names of antibiotics. Content is currently being created by the students under the supervision of the faculty. The team plans on officially launching the Instagram account by later 2023. To assess the success of BUG OFF Instagram, Instagram analytics will be evaluated, and an anonymous, voluntary survey will be distributed to our followers.

**Keywords:** NAPLEX preparation, Infectious disease review, Research in-progress

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**Title:** Faculty Engagement, Perspectives and Barriers to Mentoring Student Research Projects

**Abstract:** Many PharmD students are interested in working on a research project but with the increase in demand for research opportunities, there is a question if SJU faculty availability can meet that demand. The primary objective was to assess faculty involvement in mentoring Pharm.D. student research projects. The secondary objective was to identify the challenges and barriers that faculty encounter when mentoring PharmD student research projects. An electronic survey of nineteen questions created via Google Forms was sent to eighty-five full-time faculty members of varying academic ranks and disciplines who teach in the pharmacy program. The survey was completed by 48/85 (56%) faculty including pharmacy practice (47.9%), pharmaceutical sciences (45.8%), and social and administrative sciences (6.3%). Responses were obtained from full (36.4%), associate (47.9%), and assistant (16.7%) professors. On average, faculty-mentored 1.44 (0-6), 2.25 (0-10) and 2.79 (0-10) students and 0.979 (0-5+), 1.14 (0-5+) and 1.39 (0-5+) projects over the past 3 years. Faculty report dedicating an average of 2.68 (1-6) hours per week to each project. Likert scale results reveal that faculty think engaging students in research is important (4.18) for student development and are neutral (3.16) on the importance of mentoring research students to advance their careers. A total of 36/48 (75%) faculty believe it is important/extremely important to engage PharmD students in research for student development. A total of 31/48 (64.6%) of professors strongly agree/agree that lack of time is the main barrier they encounter in mentoring PharmD research students.

**Keywords:** Research, faculty availability, mentors

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**Title:** Evaluating the Evidence of Dose-Dependent Effects of Famotidine in the Treatment of Gastroesophageal Reflux in Infants

**Abstract:** Famotidine has replaced ranitidine as the histamine-2 blocker (H2 blocker) of choice in the treatment of gastroesophageal reflux disease (GERD) in children. The recommended dosage of ranitidine is higher for GERD than for gastritis. We questioned whether the same was true for famotidine. A literature search was undertaken to review the pharmacokinetics, pharmacodynamics, and dose-dependent effects of famotidine in infants. We aimed to determine whether higher doses of famotidine are necessary when treating GERD in order to prevent the premature declaration of treatment failure with H2 blockers. A literature search was conducted on PubMed and EMBASE using the terms “Famotidine AND Infants or Children,” and “GERD and Infants.” Six pertinent articles were selected from 41 results. The studies included a cumulative 123 patients ranging in age from neonates to adults. The most clinically significant result found a dose-dependent response in treatment of GERD documented in 2 infants. One patient required a dose of 0.25 mg/kg to achieve a pH above 4, while the other patient required a dose of 0.5 mg/kg to achieve efficacy. This lead to the conclusion that according to these studies, it is reasonable to use higher doses of famotidine in the treatment of GERD in infants for a short period of time to achieve greater efficacy; however, a prospective study is needed to confirm this recommendation.

**Keywords:** Management of GERD, infants, pharmacokinetics

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**Title:** Application of Acid-Base Supersolubilization (ABS) Principle to Increase Aqueous Solubility of Indomethacin and its Dissolution from ASD Prepared by Hot-Melt Extrusion

**Abstract:** Purpose: This work demonstrates the potential of the acid-base supersolubilization (ABS) principle to overcome extremely low solubility challenges. ABS between a weak acidic drug, indomethacin (IND), and a weak base, tromethamine (Trom), improved the solubility of the drug in water from <1 mg/mL to an outstanding >240 mg/mL. Furthermore, the research shows the application of ABS to lower the processing temperature of hot melt extrusion (HME) and form amorphous solid dispersion of IND. Methods: The aqueous solubility of IND, with various weak bases, was determined using the shake-flask method at 25oC, and samples were analyzed using HPLC. Amorphous solid dispersions (ASD) were prepared using HME (Thermo Scientific Process11mm extruder). Rheology as a function of temperature, hot-stage microscopy, DSC, and PXRD were performed to determine HME experimental conditions and characterize ASDs. In vitro dissolution testing of 25-mg IND equivalent was performed in 250mL 0.1M HCl (pH 1.2) using USP II apparatus at 50 RPM and 37oC. Results: While literature showed ≤15% indomethacin drug release at pH 1.2 due to its poor solubility (<0.001 mg/mL at pH 1.2), formulations formed using ABS showed remarkably high drug release of >80%. The solubility of IND (mg/mL) in 0.1M solutions of the weak bases histamine, lysine, arginine, and tromethamine was 1.77, 1.05, 48.31, and 137.98, respectively; increasing concentration displayed acid-base supersolubilization around pH 7.5-8. In contrast, strong bases like sodium hydroxide and bicarbonate caused salt formation above pH 7.2, limiting solubility enhancement versus non-salt forming weak bases. Tromethamine showed the highest ABS, with IND solubility reaching >240 mg/mL around pH 8. Using the ABS principle, a solid ASD was formed by the solvent-free HME process at a very low temperature of 80 oC. IND-Trom mixture at a 1:2 molar ratio and the polymer-KollidonVA64 (KVA64), along with or without added surfactant, Poloxamer-407(P407) at 10 and 20% levels, was used for ASDs. Physically and chemically stable ASDs were formed in all cases. Conclusion: The application of the acid-base supersolubilization (ABS) principle allowed the formation of ASD of IND at a low temperature of 80oC, and it greatly enhanced indomethacin's (IND) solubility in water and the dissolution rate from ASD.

**Keywords:** Acid-base supersolubilization, Hot-melt extrusion, solubility improvement

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**Poster Number:** 89

**Title:** Application of 3D Printing Technology for the Development of Dose Adjustable Geriatric and Pediatric Formulation of Celecoxib.

**Abstract:** Developing safe and effective formulations for the geriatric and pediatric population is a challenging task due to issues of swallowability and palatability. Manipulating adult formulations for children can lead to suboptimal efficacy and safety concerns. To overcome these challenges, 3D printed spinklets are proposed for ease of administration and flexible dose adjustment. The aim of this study is the development of a 3D printed spinklet formulation of celecoxib, a nonsteroidal anti-inflammatory drug, using hot melt extrusion to address the limitations of traditional manufacturing methods. Three different formulations of celecoxib were prepared using Poly-2-ethyl-tetra-oxazoline (Aquazol) with and without surfactant. The mechanical properties and solubility of the drug-loaded filaments were evaluated. Computer-aided design software facilitate sprinklets design for fused deposition modeling and scanning electron microscopy assess the surface morphology. Sophorolipids plasticize better than TPGS, resulting in lowering processing temperatures during melt extrusion. In vitro drug release showed successful enhancements in the dissolution of oral medications for pediatric patients, considering their distinctive physiological characteristics. Overall, this study demonstrates the successful development of PEtOx-based 3D printed celecoxib sprinklets by coupling hot-melt extrusion and 3D printing technology. Future exploration holds the potential to revolutionize pharmaceutical production and advance personalized medication formulations.

**Keywords:** 3D Printing, Solubility, Flexible Dosing

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**Poster Number:** 90

**Title:** Orthosteric or Allosteric: Are BMP-like benzimidazoles true agonists?

**Abstract:** Bone Morphogenic Proteins (BMPs) are key signaling molecules during embryonic development and for regulation of skeletal components; however, using recombinant BMPs approved for bone repair is expensive and potentially dangerous. BMPs bind and activate a receptor complex leading to phosphorylation of substrate proteins, called Smads. Phosphorylated Smads (P-Smads) go on to regulate gene expression through transcription. Novel small molecules have been discovered that activate BMP receptors mimicking the activity of BMPs. Whether and how BMP-like benzimidazoles (LB-3-101 and LB-3-107) compete with BMPs for receptor binding is the purpose of our research. Stimulating C2C12 cells, a myoblast cell line, with BMP-like benzimidazoles demonstrates that the compounds induce cell proliferation on their own. After stimulating with increasing concentrations of LB-3-101 or LB-3-107 in the presence of recombinant BMP protein, maximum BMP-induced cell viability was reduced suggesting direct competition at the orthosteric sites of the BMP receptor complex. Western blot analysis of downstream signaling events is revealing how this apparent competition affects signaling outcomes. Examination of the state of Smad phosphorylation and other downstream targets stimulated by BMPs alone or in competition with LB-3-101 or LB-3-107 indicates that the presence of increasing concentrations of BMP-like benzimidazoles does influence the level of intracellular signaling. Taken together, these data suggest that the actions of BMP-like benzimidazoles are a result of direct competition at the orthosteric sites of the BMP receptor complex. Importantly, as true agonists, these small molecules are highly attractive candidates for replacing recombinant BMP protein in the clinical setting.

**Keywords:** Pharmacology, receptor-binding, signaling

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**Title:** Development of Dissolving Buccal Film of Desipramine for Depression Symptom Management

**Abstract:** Desipramine, a BCS Class III tricyclic anti-depressant drug, is FDA-approved as an effective therapeutic treatment option in the management of depression but maintains a toxic profile causing severe adverse side effects in patients. Through successful incorporation of Desipramine into buccal patches by Solvent Casting Method, both the safety and efficacy of the drug profile can be enhanced by simplifying the drug's route directly into the patient's bloodstream through the buccal mucosa. The films were prepared by dissolving polymers of Eudragit RL 100 and HPMC F4M in Ethanol in separate vials through sonication. The HPMC F4M vial was then transferred to a beaker covered with aluminum foil and placed on a magnetic stirrer. Into the beaker, water was added dropwise and then the contents of the Eudragit RL 100 vial were added through continuous magnetic stirring. Once combined, PEG was added. Once air bubbles were removed, the beaker's contents were poured onto a 13 cm x 13 cm petri plate and allowed to air dry. Patches were cut in dimensions of 32 mm x 35 mm. The film is smooth, clear, and deemed uniform through testing each trial for thickness, weight of patch, and total weight of the batch. The patches passed folding endurance tests by doing 300 folds in the same spot without any sign of cracking or breaking. In conclusion, the Desipramine patches have been successfully developed. Further characterization will be conducted involving solid-state characterization, drug content uniformity, and drug release studies.

**Keywords:** industrial pharmacy, formulation development, dosage form design

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**Title:** The effect of pythocholic acid on Mitochondrial function

**Abstract:** Title: The effect of pythocholic acid on mitochondrial function Valentina Molina, Sydney Idahosa, Akira Kawamura, Sei Higuchi. Sydney, sydney.idahosa19@my.stjohns.edu Akira Kawamura, akawamur@hunter.cuny.edu, Department of Chemistry. Hunter College Obesity and metabolic disease are the world's largest health problems. Impaired energy expenditure is associated with the development of obesity. Bile acids (BAs) are considered to be a potential target for the prevention of obesity and metabolic disease. BAs are synthesized in the liver and act as signaling molecules involved in energy expenditure, insulin secretion, and satiety control. Previously, we reported that treatment of unique BA extracted from python, pythocholic acid will be compensatory methods to mitigate obesity and metabolic diseases. However, the role of pythocholic acid on energy expenditure has not been know. Thus, our research aim is to illuminate pythocholic acid on mitochondrial functions because it is associated with metabolic and energy expenditure. Pythocholic acid was extracted from a Burmese python. We investigated the effect of pythocholic acid on mitochondrial function using Seahorse XF Analyzers. Interestingly, pythocholic acid treatment increased the oxygen consumption rate (OCR) in HepG2 cell. Next, we elucidate the mechanism of pythcholic acid on increased OCR. We tested the effect of a natural TGR5 agonist, lithocholic acid (LCA), and TGR5-specific agonist, INT-777 because pythocholic acid has potency in BA receptor TGR5 activation. The treatment of LCA and INT-777 decreased OCR. This evidence suggests that pythocholic acid increases OCR independent mechanism of bile acid receptors. Even though the mechanism is not known, pythocholic acid increases mitochondrial energy expenditure. Our results imply that pythochoclic acid may mitigate obesity through improved energy expenditure.

**Keywords:** pharmacology, disease, prevention.

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**Title:** A Quality by Design (QbD) optimized nose to brain delivery of herbal drug using a nanoemulgel for treatment of neurodegenerative disorders.

**Abstract:** Neurodegenerative conditions like Alzheimer's disease, Parkinson's disease, Huntington's disease, and amyotrophic lateral sclerosis are marked by the gradual deterioration of neurons, resulting in cognitive and motor dysfunction. Despite advances in science and technology, finding effective therapies for these debilitating ailments has proven challenging due to the blood-brain barrier (BBB) and limited therapeutic efficacy. Recently, the focus has shifted towards natural compounds with neuroprotective attributes. Among these, celastrol (Cela), a triterpenoid sourced from traditional Chinese medicine, has garnered attention due to its multifaceted pharmacological effects, including anti-inflammatory, antioxidant, and anti-apoptotic activities. However, challenges such as poor aqueous solubility and low bioavailability necessitate the development of delivery systems to maximize its therapeutic efficacy. In this regard, nanoemulgel formulations (NE) offer a promising approach for nose-to-brain drug delivery by combining the advantages of nanoemulsion and hydrogels. Their nano-sized droplets facilitate enhanced drug permeation across the nasal mucosa, while the gel matrix provides sustained release and improved residence time. Moreover, this study proposes a Quality by Design (QbD) approach to optimize NE-Cela to enhance drug stability, permeability, and brain targeting. The QbD framework enables systematic development by identifying critical formulation and process parameters affecting product quality and performance. Characterization involves droplet size, polydispersity index, zeta potential, drug release kinetics, in vitro permeation studies and cytotoxicity studies. Therefore, this study is guided by systematic formulation design and optimization in overcoming the challenges associated with drug delivery to the brain, thus offering promising avenues for the development of effective therapies for neurodegenerative diseases.

**Keywords:** Neurodegenerative conditions, Celastrol, Nanoemulgel

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**Poster Number:** 94

**Title:** Development of Self-Quenched Optical Imaging Agent Using Polymeric Micelles

**Abstract:** Surgery is the mainstay of ovarian cancer treatment. For advanced ovarian cancer, the patient receives extensive surgery to remove as much of the tumor as possible. However, due to the aggressive nature of the cancer and the location of the tumor tissues in the abdominal area that makes it difficult to differentiate the tumors from normal tissues, it is challenging to conduct near-complete surgical tumor resection. The main objective of this study is to develop an optical imaging agent that can illuminate ovarian tumor tissues when they reach the target but remain silent in the emission signal at the off-target areas. In this study, we utilized the self-quenching property of the near-infrared (NIR) fluorophore to achieve the optimal contrast. Ovarian tumor-targeting polymeric micelles were used to create the environment where the fluorescence signal of the fluorophore was reduced when packed in the micelles but increased significantly when released. We designed and prepared self-quenched and non-quenched imaging agents by encapsulating the fluorophore in the tumor-targeting micelles at various occupancy levels. At low occupancy, the fluorophore exists in a non-quenched state, demonstrating strong fluorescence emission. In contrast, fluorophore exists at high occupancy in the self-quenched state, showing a much-reduced fluorescence signal. We believe that the self-quenched micelles can serve as a promising imaging agent to visualize ovarian cancer with improved tumor-to-background contrast and to achieve better surgical outcomes by guiding the surgeons in a real-time manner.

**Keywords:** Self-quenched, fluorophore, Imaging agent, Tumor, Polymeric micelles.

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**Title:** The Role of Fidaxomicin for the Treatment of Clostridioides Difficile Infection in the Pediatric Population in the United States

**Abstract:** In 2020, the FDA approved fidaxomicin (FDX) for treating Clostridioides difficile infection (CDI) in children 6 months and older. The latest IDSA/SHEA guidelines recommend FDX use for adults only. This study aims to assess the use of FDX in US pediatric patients and identify barriers to use. An anonymous, voluntary electronic survey was distributed to the American Society of Health-System Pharmacists and the Pediatric Pharmacy Association in January 2023. Baseline demographics, current practices, knowledge, comfort, and barriers to FDX use in pediatrics were collected. 37.5% (12/32) reported having institutional pediatric CDI guidelines. FDX use was significantly higher in institutions with CDI guidelines for recurrent CDI compared to those without guidelines ($p<0.05$). Top 3 barriers were cost (71%, 22/31), inability of patients to afford upon discharge (64.5%, 20/31), and lack of provider familiarity (41.9%, 13/31). 53.1% (17/32) respondents were comfortable using FDX in pediatrics, 87.5% (28/32) were aware of its FDA approval in children, and 90.6% (29/32) were aware it was not in the IDSA guidelines. Most respondents do not have institutional pediatric CDI guidelines. FDX use was most common in treatment failure. Despite its FDA approval, most respondents reported at least one barrier to FDX use. Majority were comfortable using FDX in pediatrics. This study is limited by its small sample size as expected due to the studied population.

**Keywords:** C.diff, fidaxomicin, pediatrics

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**Poster Number:** 96

**Title:** Recent Trends in Diagnosis, Treatment and Control of Hypertension among African Americans: The National Health and Nutrition Examination Survey, 2009 to 2020

**Abstract:** Background: The 2020 US Surgeon General's Call-to-Action recommends focus areas to promote health equity in hypertension management. Recent literature suggests a declining trend in blood pressure (BP) control among US adults. We sort to determine causes of such decline, focusing on African Americans. Methods: Non-pregnant adults (≥ 18 years) with hypertension from the National Health and Nutrition Examination Survey (NHANES) 2009 to 2012, 2013 to 2016, and 2017 to 2020 were identified for the study. Hypertension was defined as systolic BP ≥ 140 mmHg, diastolic BP ≥ 90 mmHg, or antihypertensive medication use. All estimations of rates were adjusted for survey weights and age. Results: The prevalence of undiagnosed hypertension increased from 17.9% (2009-2012) to 20.7% (2017-2020) (P trend=0.028), while the treatment rate decreased from 75.3% to 71.6% (P trend = 0.03). This was predominantly driven by a sharp decline in treatment rate among African Americans (77.8% to 71.5%, P = 0.002), while such trends were milder among other races. The prevalence of diuretics use decreased, with the sharpest drop observed in African Americans (45.7% to 34.5%, P < 0.001). In concert with these findings, the overall rate of BP control decreased from 52.5% to 48.2% (P = 0.015). African Americans experienced more than a 10% drop in BP control (48.7% to 37.4%, P < 0.001) during the 12-year study period. Conclusions: Decreased rates of antihypertensive therapy likely contributed to the declining BP control in recent years. Hypertension control continues to be a top priority among African Americans.

**Keywords:** Health disparities, hypertension management, treatment trends

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**Poster Number:** 97

**Title:** Efforts Towards the Design and Synthesis of SIX1-EYA Transcriptional Complex Inhibitors.

**Abstract:** The sine oculis homeobox (SIX) homeodomain proteins and the eyes absent proteins (EYA) family of co-activators form a SIX1-EYA2 transcription factor complex. SIX1-EYA2 is a developmental transcriptional complex that promotes the proliferation and survival of progenitor cells during organogenesis and is overexpressed in multiple cancer types (e.g., ovarian, breast, glioblastomas, leukemia, and Wilms' tumor). Disruption of the SIX1-EYA2 interaction is a novel approach for inhibiting cancer progression while limiting side effects. To date, 8430 is the only small molecule inhibitor of the SIX1-EYA2 interaction. In the present study, amide analogs of 8430 were designed and efforts towards their synthesis have been made in order to improve anti-cancer efficacy through structure-activity relationship studies. Going forward, new analogs will be evaluated in relevant cell-based assays.

**Keywords:** Cancer, protein-protein interaction, medicinal chemistry

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**Poster Number:** 98

**Title:** Silent Suffering: The Intersection of the Palestinian Genocide and Healthcare

**Abstract:** Systematic intentional starvation, malnutrition, a dire lack of proper health equipment, endemic food insecurity, and entrenched poverty have long cast a grim shadow on the nutritional well-being of Palestine. However, since October 7th, a sweeping genocide was orchestrated by the Israeli state within Palestinian territories. The relentless slaughters, destruction of buildings, homes, and even hospitals, have left innocent Palestinians amidst the ruins of their lives. Hospitals, once sanctuaries of healing, now are in crumbles due to constant bombing, ending the lives of patients: from the prematurely born to the elderly, alongside dedicated doctors and medical staff. In addition, a blockade enforced by Israeli authorities prevents the passage of crucial supplies, including food, water, and basic necessities. This study delves into the multifaceted dimensions of healthcare disparities exacerbated by the relentless genocide unfolding in Palestine, tracing its roots from the 19th century to the 21st. It scrutinizes the critical role of social justice in addressing the pervasive inequities within the healthcare sector. Through a thorough examination of these intersecting challenges, this research aims to spread honest and profound knowledge, mobalize support, and contribute to advocating for the Palestinian people.

**Keywords:** healthcare, poverty, social justice

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**Title:** Effects of Fluid Balance and/or Diuretic Use on Clinical Outcomes in Children with Bronchiolitis: A Critical Review of the Literature

**Abstract:** Children under 2 years of age are susceptible to developing more serious cases of bronchiolitis that require critical care. Administration of IV fluids is recommended for the initial management of critically ill pediatric patients. However, this may lead to fluid overload and pulmonary edema, which have been associated with adverse clinical outcomes. Current practices in the PICU regarding the management of fluid overload in these patients vary. Some clinicians may employ furosemide, other clinicians may not. This review investigates the effects of fluid overload on patient outcomes and the impact of diuretic use. The authors, one pharmacy student and one clinical pharmacist with advanced training in pediatric pharmacotherapy, reviewed eleven articles that fit the criteria of critically ill pediatric patients, fluid balance, diuretic use, clinical outcomes, bronchiolitis, and/or other respiratory morbidities. Fluid overload in children hospitalized for bronchiolitis was associated with a longer MV duration and hospital and PICU LOS. Single doses of furosemide generally did not improve clinical outcomes. Multiple doses showed a reduction in FiO2 requirements; however, this was accompanied by longer PICU LOS and electrolyte abnormalities. More research is needed to clarify whether diuretics are advantageous in this clinical setting and appropriate dosing strategies. In conclusion, improving fluid balance in children admitted for bronchiolitis is advisable. Whether furosemide administration is beneficial in this setting is not clear.

**Keywords:** pediatrics, critical care, diuresis

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**Title:** Discovery and development of small molecule modulators of BMPR and TGF-beta receptor signaling pathway as potential therapeutic agents.

**Abstract:** Bone Morphogenetic Proteins (BMPs) are a group of multi-functional growth factors that belong to the Transforming Growth Factor  (TGF) superfamily of serine/threonine transmembrane kinases. BMPs bind to tetrameric combinations of select BMPRI and BMPRII receptor subunits to regulate downstream signaling. Mechanistically, BMPR activation leads to initiation of intracellular signaling via activation of receptor regulated SMADs (R-SMADs). R-SMADs form a heteromeric complex with the common mediator (Co)-SMAD4 to regulate gene transcription. Stimulation of BMPR complexes also results in activation of non-canonical (non-SMAD) signaling such as activation of p38, JNK and MAP kinases. Given the pivotal role of BMPs as regulators throughout the body, deficiencies in BMP expression or signaling functionality induces pathologies in humans. We have recently discovered, for the first time, a series of benzimidazole derivatives as small molecule agonists of BMPRs. These novel compounds also promote wound healing and osteogenic differentiation of pluripotent cells in vitro. As an extension of this project, we have designed and synthesized four benzimidazole derivatives of a natural product, gallic acid, for our study, which aims to further understand the structure/activity relationship of these novel compounds. Our initial cell viability data strongly support that these compounds stimulate the growth of the pluripotent myoblast C2C12 cells at low micromolar concentration. Current investigations are focused on the effect of these gallic acid-benzimidazole derivatives in BMPR-dependent signaling and functional outcomes, including cell migration and differentiation.

**Keywords:** Benzimidazole, BMP receptor stimulation, pharmacology, drug discovery

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**Title:** Targeting epigenetic regulator PRMT5 is a novel therapeutic approach for neuroblastoma

**Abstract:** Neuroblastoma (NB) is a solid tumor originating from the extracranial sympathetic nervous system in the pediatric population. Despite recent advances, NB often relapses as a metastatic and drug-resistant tumor. Therefore, it is crucial to identify novel molecular targets and develop effective therapeutic regimens for NB. PRMT5 is a known arginine methyltransferase, and inhibition of overexpressed PRMT5 has been shown to be an effective therapeutic strategy for multiple cancers. In the present study, we used a specific PRMT5 targeting small molecule inhibitor, PR5i, in NB to determine the pre-clinical effects of inhibiting NB growth using an epigenetic-based PRMT5 inhibitor. We analyzed multiple NB patient datasets and found that PRMT5 expression is inversely correlated with the overall survival of NB patients. Our data for cytotoxicity and clonogenic assays show that PR5i significantly and, in a dose-dependent manner, inhibits NB proliferation and colony formation. Additionally, PRMT5 inhibition significantly induces apoptosis and inhibits cell cycle progression by inhibiting cell cycle S phase in different NB cell lines compared to control treatments. Furthermore, we used NB 3D spheroid models that recapitulate in vivo NB tumor growth and found that PRMT5 inhibitor significantly and in a dose-dependent manner inhibits 3D spheroid growth and volume compared to control treatments. Overall, our data show that PRMT5 targeting is an effective therapeutic strategy for high-risk NB. Further developing PRMT5 inhibition and combining it with current therapies will pave the way for efficient clinical translation and hold significant promise for effective NB treatment.

**Keywords:** Neuroblastoma, pediatric cancer, epigenetics

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**Title:** Advancing Precision Healthcare Analytics: Machine Learning Approaches for Diabetes Prognosis using the PIMA Indian Dataset

**Abstract:** The prevalence of diabetes presents a significant global health challenge, necessitating effective prognostic tools for timely intervention. Harnessing machine learning offers a promising avenue for accurate prediction, aiding in early detection and prevention. This study delves into the development of machine learning models for diabetes prognosis, leveraging the PIMA Indian dataset. Emphasizing the importance of early detection, the research underscores diabetes as a modifiable condition through lifestyle adjustments. By analyzing diverse healthcare data, including electronic health records and imagery, machine learning algorithms can unveil latent patterns crucial for timely diagnosis. The research methodology encompasses a range of machine learning algorithms such as Logistic Regression (LR), Random Forest Classifier (RF), Decision Tree (DT), K-Nearest Neighbors Classifier (KNN), and Support Vector Machine (SVM), applied to the PIMA dataset to identify optimal prediction methods.The findings highlight Deep Learning's (DL) efficacy in feature extraction and prediction accuracy, suggesting its potential for automated prognostic tools. Furthermore, the integration of omics data holds promise for enhancing DL model performance, paving the way for robust diagnostic solutions.

**Keywords:** health AI, Early Diseases prediction

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**Poster Number:** 103

**Title:** Chimeric construction of an epigenetic kill-switch system through exploitation of the bacterial RNA thermometer mechanism

**Abstract:** RNA thermometers (RNATs) are RNA sequences that can control gene expression by changing their secondary structure in response to changes in temperature. Located in the 5' UTR of messenger RNA, translation of mRNA into protein can be modulated by RNATs sequestering ribosome binding sites (RBS) at non-permissive temperatures, whereas at permissive ones, the unfolding of the secondary structure caused by the temperature increase allows for the ribosome to get access to the sequence and initiate translation. Additionally, RNA thermometers are most effective and compact possessing a hairpin-like structure that has mismatched base pairs in the stem. The aim of our research is to develop a bacterial strain with a DNA sequence that first expresses a toxin, and secondly, expresses a protective product (antitoxin) at 37ºC. The expression is regulated by the RNA thermometer so that the antitoxin is only produced at a specific temperature. At lower temperatures, around 20ºC, the antitoxin will not be expressed and the bacteria will be destroyed. Uses for this technology include environmental protection, biocontainment, and the protection of intellectual properties.

**Keywords:** Synthetic Biology, RNA Thermometers, Gene Cloning

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**Poster Number:** 104

**Title:** Crosstalk between atrazine and curcumin on estrogen homeostasis: Mechanistic Insights from a Secondary Analysis

**Abstract:** Atrazine is one of the most used herbicides in the US for agricultural crops, including corn, pineapple, and sugarcane. Because of its wide use, atrazine is the most abundant pesticide contaminant in the environment and is detected in drinking water, thus posing a significant concern to public health. Curcumin is a natural substance and a key component of the spice turmeric. Curcumin has been long recognized for its health benefits such as antioxidant and anti-inflammatory properties. The goal of the current project is to investigate whether curcumin can protect us from atrazine exposure. By curating data from scientific literature and NCBI databases, we compared and contrasted atrazine and curcumin on their physicochemical properties and impacts on diverse physiological processes. Based on the genes that are influenced by either chemical, we identified a unique converging point of the two chemicals' influence on steroid hormone production and signaling. As illustrated in the schematic, atrazine activated SF-1, a master regulator controlling the expression of multiple enzymes involved in the biosynthesis of steroid hormones. Atrazine also induced the expression of CYP19A1, the enzyme converting testosterone to estrogen. This evidence suggests a mechanism by which atrazine can abnormally increase estrogen production and subsequent signaling and effects. Curcumin, on the other hand, strongly induced CYP3A4, the key liver enzyme responsible for steroid breakdown. Therefore, curcumin may alleviate atrazine-increased steroid hormone levels by promoting CYP3A4-mediated turnover. In conclusion, our secondary analysis revealed a mechanistic insight into how curcumin may confer protection in the face of atrazine exposure.

**Keywords:** atrazine, estrogen, secondary analysis

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**Title:** Identification of cytochrome P450 16a-hydroxylation enzyme involved in pythocholic acid synthesis for future anti-obesity drug discovery.

**Abstract:** Our ultimate research goal is to find a way to slow, or even reverse, obesity, a disease that currently affects four out of ten Americans, and continues to climb. Four million people die each year because of obesity, according to the World Health Organization (WHO), and is linked to 30% to 53% of new diabetes cases in the U.S. every year. It also increases the risk of cardiovascular disease, diabetes, inflammatory diseases, and neurodegenerative diseases. Currently, only 5 drugs are approved as anti-obesity drugs. However, several adverse effects have been known. Thus, a novel approach is necessary for obesity treatment. Bile acids (BAs) which are synthesized in the liver are expected to be a potential treatment for obesity and metabolic disease. 16a-hydroxylated BAs treatment decreases food intake through enhanced satiety signaling in mice, suggesting that 16a-hydroxylation of BAs will be a potential therapeutic target for obesity and metabolic diseases. However, mammals do not possess 16a-hydroxylation enzymes. This research aims to identify the 16a-hydroxylation enzyme for future anti-obesity drug discovery. It is known that python snakes have 16a-hydroxylation enzymes. We identified 12 python-specific cytochrome P450 enzymes using a phylogenetic tree using amino acid sequencing information. To evaluate these gene expressions, we designed specific primers and conducted qPCR using python liver samples. Six python-specific cytochrome P450 genes were detectable by qPCR (Ct value range is 25-32). As future research direction, we will generate a plasmid construct for six python-specific cytochrome P450 and transfect them into hepatic cell lines to evaluate the 16a-hydroxylation.

**Keywords:** Obesity, phyton, bile acids

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**Title:** Public vs Private school Education

**Abstract:** Abstract  This capstone project concerns possible  differences in how private and public schools prepare their students for the transition to college. A sample of 25 students completed a brief survey on  Qualtrics. The primary hypothesis that individuals who attended a private high school would report being better prepared for college than students who attended a ublic high school was not supported. Indeed few differences were found  between students from Public and private schoolson any measures. This lack of difference is surprising given the well-known disparities between public and private high schools in the availability of  after-school programs and extracurricular activities as well as support in the college application process(Aprile,2021).

**Keywords:** Education, College Readiness, College Resources

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**Poster Number:** 114

**Title:** Tree Inventory Project

**Abstract:** We are collecting tree data on campus and running them in a program called I-Tree ECO to figure out the energy reservation, runoff, and more which they can benefit our university.

**Keywords:** environmental study, tree, energy

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**Poster Number:** 106

**Title:** Grand Jury Secrecy

**Abstract:** The policy of the proceedings of a Grand Jury is that, with some exceptions, the entire proceeding is supposed to be kept secret and is not supposed to leave the court room. Other than the parties, the judge, the stenographer, and the jury, no one outside of these groups should know about how it went and what happened during the proceeding. So I am going to go into cases where the information has almost gotten out but has been denied by a court. I will also go over the exceptions and why they are exceptions.

**Keywords:** Investigative, creative, nice presentation

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**Poster Number:** 107

**Title:** Assessing the Economic Impact: Healthcare Expenditures in the US Attributed to Viral Pathogens

**Abstract:** This study investigates the substantial impact of viral infections on healthcare expenditures in the United States. Viral pathogens, including seasonal influenza and emerging threats like SARS-CoV-2, consistently strain healthcare systems, necessitating significant financial resources for diagnosis, treatment, and prevention. By synthesizing data from diverse sources such as healthcare databases, epidemiological surveys, and economic analyses, this research seeks to quantify the economic burden imposed by viral infections on the US healthcare sector. The analysis encompasses direct healthcare costs such as hospitalization, outpatient visits, medications, and diagnostic procedures associated with viral illnesses. Furthermore, indirect costs stemming from productivity losses due to illness-related absenteeism and disability will be assessed. The study also evaluates the economic impact of preventive measures including vaccination campaigns, public health interventions, and the development of antiviral therapies. The insights derived from this research are invaluable for policymakers, healthcare administrators, and public health authorities in formulating strategies to mitigate the financial repercussions of viral outbreaks. By comprehending the scale and distribution of healthcare expenditures attributed to viral pathogens, stakeholders can allocate resources more efficiently, enhance preparedness efforts, and prioritize interventions to alleviate the economic burden of infectious diseases. Ultimately, this study aims to offer evidence-based recommendations to optimize resource allocation, enhance healthcare delivery, and bolster resilience against present and future viral threats. Understanding the economic implications of viral infections is crucial for protecting public health and ensuring the sustainability of healthcare systems in the United States.

**Keywords:** Healthcare expenditures, Viral pathogens, Economic Burden

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**Title:** Enhancing Biomedical Knowledge Representation Through Knowledge Graphs

**Abstract:** In the biomedical domain, there is an abundance of biomedical documents and information available online. This surge of available biomedical information online has also presented a critical issue with biomedical content publishing, where these biomedical texts need embedded semantic metadata. Semantic metadata is crucial for search engines to retrieve results for biomedical terms and ontologies accurately. Therefore, there is a substantial demand for biomedical annotation systems that allow domain experts to annotate biomedical documents with semantic metadata. Many biomedical semantic annotators have been created for this purpose, but all struggle to achieve varying degrees of optimum preciseness, speed, and dynamic knowledge representation. We propose a knowledge graph-enhanced biomedical semantic annotator for our use case that will store and retrieve annotations in a triple model. To implement our knowledge graph, we have created a knowledge graph search tab in “Semantically”, a biomedical content semantic annotator that provides a social-technical approach to biomedical content authoring. Domain experts and non-technical users can search for recommended ontologies, domain experts, and responses through the Knowledge Graph tab to find the best ontologies for key terms. To test the efficiency of the knowledge graph search tab, we will calculate the precision, F1, Recall, accuracy, and time in milliseconds for the Knowledge graph compared to contemporary biomedical semantic annotators. We expect that the accuracy score and the processing time for retrieving recommendations will be better and shorter, respectively in Semantically. Further enhancements to the knowledge graph tab, such as an NLP-enhanced search engine, will be explored for search query optimization.

**Keywords:** Knowledge Graph, Biomedical, Knowledge Representation

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**Poster Number:** 109

**Title:** Content Analysis of Culturally Responsive-Sustaining Education Forums Hosted by The Institute for Critical Race & Ethnic Studies

**Abstract:** We hope to use a quantitatively based application approach combined with qualitative tools utilizing Natural Language Processing to conduct a content analysis of six Culturally Responsive-Sustaining Education (CR-SE) Forums involve educators who are learning from professionals within these conversations of various ways that they are providing their classrooms with Culturally Responsive-Sustaining Education practices hosted by The Institute for Critical Race & Ethnic Studies between the 2022 –2023 and 2023-2024 academic school years. These forums are primarily attended by educators. The goals of CR-SE framework put forth by the New York State Education Department explore the relationship between historical and contemporary conditions of inequality and ideas that shape access, participation, and outcomes for learners. Our research question is as follows: Were the goals of the CR-SE Framework successfully conveyed and discussed in these forums between teachers, educators and members of the St. John's University? We created the CR-SE Evaluation Rubric, a questionnaire that has 20 questions using a scale of "Disagree, Neutral, Agree" to establish reliability of the results. There is an 81.48% intercoder reliability between three intercoders using this rubric. Through content analysis and data visualization to showcase how CR-SE curriculum is being discussed, we aim to share positive insights regarding these forums and the conversations being held revolving around power structures, race, communities, and histories often overlooked.

**Keywords:** Culturally Responsive-Sustaining Education, Natural Language Processing, Education

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**Title:** Court of Appeals of Ohio, Eighth District, Cuyahoga County. The STATE of Ohio Appellee, v. TERRY, Appellant. Feb. 10, 1966.

**Abstract:** Synopsis- The defendant was convicted in the Court of Common Pleas of Cuyahoga County of carrying a concealed weapon, and he appealed. The Court of Appeals, Silbert, C. J., held that the detective who observed the defendant and another alternately leave the corner and walk several hundred feet to peer into the window of either a jewelry store or airline office and then return to the corner to converse did not violate constitutional rights of defendant by questioning him as to his identity, by frisking him, or, upon discovering fully loaded automatic, by arresting him and that weapon obtained was admissible in evidence. Issue- Did the court err by not sustaining the defendant's motion to suppress upon making its findings that the arrest herein was illegal? Did the court err in applying the constitutional guarantee prohibiting illegal search and seizure and substituting a doctrine of stop and frisk? Holding- The Court of Appeals, Silbert, C. J., held that the detective who observed the defendant and another alternately leave the corner and walk several hundred feet to peer into the window of either a jewelry store or airline office and then return to the corner to converse did not violate constitutional rights of defendant by questioning him as to his identity, by frisking him, or, upon discovering fully loaded automatic, by arresting him and that weapon obtained was admissible in evidence.

**Keywords:** social justice, stop and frisk, court holdings

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**Title:** Perceptions of Gossip on the Basis of Context

**Abstract:** This research aims to analyze people's overall tolerance of gossip on a location-by-location basis. Survey participants (n=152) were asked to evaluate contexts in which they could gossip and rank those contexts using a five-point Likert scale. Two conclusions were made from the resulting data: one, that contexts based on gossip can be grouped into distinctive tiers, rendering exact context largely irrelevant to gossip evaluation; and two, contexts give gossipers comfort when the objective of the gossipers within a given context is to enhance established relationships. This research adds to extant gossip literature by establishing an innovative manner of evaluating gossip through contextual tiers and by further examining gossip's true role in the art of interpersonal communication.

**Keywords:** gossip, interpersonal communication, social psychology

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**Poster Number:** 113

**Title:** Contrastive Learning on EEG Recordings of Children with Dyslexia Thesis Proposal

**Abstract:** Electroencephalogram (EEG) recordings of children are often used to study the underlying neural basis of causal factors of reading disorders and dyslexia, such as phonological ability and naming speed. However, the inter-subject variability in EEG and the unconstrained nature of reading experiments used to elicit and measure these factors made it challenging for traditional EEG analysis methods to extract neural components of these factors. In this set of studies, we will explore the use of novel deep neural network architectures and contrastive learning methods to overcome the methodological limitations of traditional methods and enhance the extraction process of neural components during reading tasks. The vision is to expand the usage of contrastive learning methods, commonly used in computer vision tasks, to EEG recordings. Motivated by the success of the recently proposed neural-congruency framework (Christoforou et al. 2021, 2022, 2023) for analysis EEG - a method that extracts neural components based on the similarity of EEG responses across subjects - we propose formulating this extraction process in the deep neural framework. Notably, we explore different neural network architectures to extract EEG embedding and use the contrastive loss that maximizes the neural congruency in non-dyslexic children compared to children with dyslexia. We plan to evaluate our approach on three EEG datasets involving children with dyslexia performing Rapid Automatized naming (RAN) and Phonological Processing tasks. The proposed contrastive learning framework will provide an enhanced tool to facilitate studying the neural underpinnings of naming speed and their association with reading performance and related difficulties.

**Keywords:** contrastive learning, EEG, dyslexia

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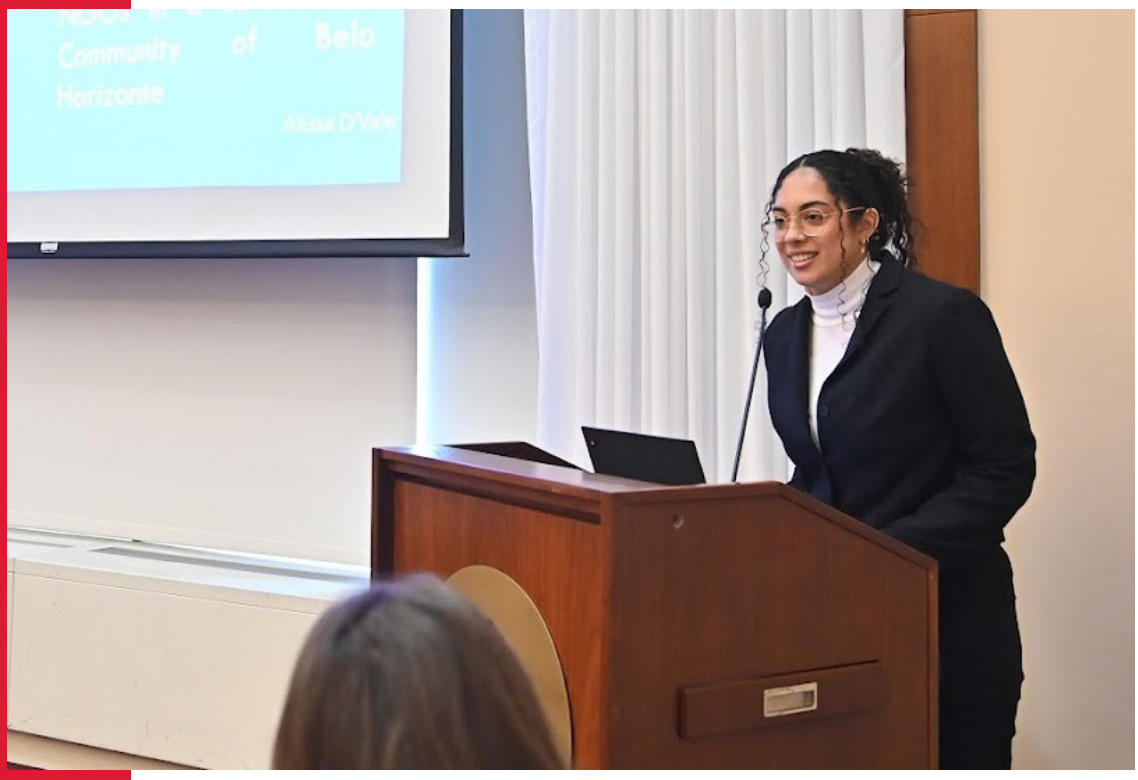
# Student Research Conference

## Panel Presentations



# Student Research Conference

# Panel Presentations

# April 10, 2024

**Sponsored by:**

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## Session I - 10:00 AM – 11:30 AM

### Panel 1. Business Analysis, Statistical Modeling, and Economics

1. *Comparative Analysis of National Champion Firms*
   Joshua Nektalov (UG)
   The Peter J. Tobin College of Business

2. *Who are they and what do they care? A Study on ChatGPT Users' Opinions towards ECommerce*
   Jeondo Lee (UG)
   The Peter J. Tobin College of Business

3. *Crypto-rush: The Regulatory Frontier of Cryptocurrency*
   Vern Kristopher Valdueza (UG)
   The Lesley H. and William L. Collins College of Professional Studies

### Panel 2. SJU CSI and Justice

1. *Crime Scene Investigation*
   Charlotte Mohr (UG)
   The Lesley H. and William L. Collins College of Professional Studies

2. *Simulation of a Crime Scene involving a stalker*
   Isabel Garcia (UG)
   The Lesley H. and William L. Collins College of Professional Studies

3. *Cheating student and murder: a simulated video of a Crime Scene*
   Isabella LaFemina (UG)
   The Lesley H. and William L. Collins College of Professional Studies

4. *Samuel Little Serial Killer*
   Samantha Pascalli (UG)
   The Lesley H. and William L. Collins College of Professional Studies

5. *Toy Box Serial Killer*
   Jenny Pan (UG)
   The Lesley H. and William L. Collins College of Professional Studies

6. *Death in the Dorms*
   Gianna Saca (UG)

The Lesley H. and William L. Collins College of Professional Studies

**Panel 3. <u>Novel Therapies and Treatments</u>**

1. *Drug Repurposing based Inhaled Therapy for Pulmonary Arterial Hypertension*
   Mimansa Goyal (GR)
   College of Pharmacy and Health Sciences

2. *PPARα signaling is required for hypophagic effect of 16α-hydroxylated bile acid pythocholic acid in mice*
   Afsin Malik (GR)
   College of Pharmacy and Health Sciences

3. *The development of small-molecule disruptors of the SIX1-EYA2 transcriptional complex*
   Kinjal Patel (GR)
   College of Pharmacy and Health Sciences

4. *Directly Targeting DNA methyltransferase 1 Inhibits Neuroblastoma Cell Proliferation*
   Danielle Rouse (GR)
   College of Pharmacy and Health Sciences

**Session II – 11:45 AM -1:15 PM**

**Panel 1. Governance, Politics, and Literature**

1. *American public diplomacy and propaganda efforts to change 'hearts and minds' in a Soviet satellite state (Bulgaria) during the Cold War, 1945-1991*
   Kristian Kafozov (GR)
   St. John's College of Liberal Arts and Sciences

2. *Haiti's history through the eyes of Kettly Mars*
   Medjina Chatelier (UG)
   The Lesley H. and William L. Collins College of Professional Studies

3. *Building a Conceptual Model: Exploring the Role of Intercultural Competence in Facilitating Sustainability Initiatives in Higher Education Settings*
   Seonwoo Bak (GR)
   The Lesley H. and William L. Collins College of Professional Studies

4. *Mixed Identities in Kim Lefèvre's Métisse Blanche*
   Claudia Cimino (UG)
   St. John's College of Liberal Arts and Sciences

5. *Navigating French Polynesia Through Chantal Spitz's "L'Île des rêves écrasés"*
   Gillian Leasunia Katoanga (UG)
   College of Pharmacy and Health Sciences

**Panel 2. Education and Social Justice**

1. *Ethical and Reliable AI Integration in Education*
   Christine Salboudis (GR)
   The School of Education

2. *Exploring the evolution of Montessori classrooms: A qualitative inquiry into the integration of modern educational practices*
   Joyce Schneider (GR)
   The School of Education

3. Investigating Barriers to Closing The Achievement Gap in MCPS High Schools
   Alana Campbell (UG)
   The Lesley H. and William L. Collins College of Professional Studies

4. *Factors of College Persistence and the Efficacy of a Staten Island, NY, College Readiness Program*
   Sullivan Padgett (UG)
   St. John's College of Liberal Arts and Sciences

5. *A Scoping Review of Multilingual, Culturally and Linguistically Diverse Language Assessments across the lifespan*
   Savannah Everett (UG)
   St. John's College of Liberal Arts and Sciences

**Panel 3. <u>Pharmaceutical Development and Characterization</u>**

1. *Clofazimine spray-dried microparticles for treatment of tuberculosis*
   Druva Sarika Rongala (GR)
   College of Pharmacy and Health Sciences

2. *Nano-encapsulated Osimertinib for Treatment of Malignant pleural mesothelioma*
   Mural Quadros (GR)
   College of Pharmacy and Health Sciences

3. *Osimertinib immunoliposomes as inhaled therapy for non-small cell lung cancer treatment*
   Apoorva Daram (GR)
   College of Pharmacy and Health Sciences

4. *MDM2 targeting PROTAC stabilizes p53 and inhibits neuroblastoma growth*
   Parul Suri (GR)
   College of Pharmacy and Health Sciences

**Session III – 1:30 PM -3:00 PM**

**Panel 1. Diversity, Inclusion, and Public Outreach**

1. *Gender and Ethnic Identity and their Relation with Adjustment*
   Leslie Alhakim (UG)
   St. John's College of Liberal Arts and Sciences

2. *Current Barriers for low-income college students to access adequate credit scores: How can St. John's University be of assistance to help low-income students create and maintain better lines of credit?*
   Isabella Basso (UG)
   The Peter J. Tobin College of Business

3. *People with communication disorders with low incomes are at higher risk of developing anxiety and depression*
   Journee Cunningham (UG)
   St. John's College of Liberal Arts and Sciences

4. *Factors that Shape People's Understanding of Surveillance Technologies*
   Layla Hasan (UG)
   St. John's College of Liberal Arts and Sciences

**Panel 2. Cross-culture Perspectives and Community**

1. *How Do First-year, African American University Students From Low Socioeconomic Backgrounds Describe Their Level Of Preparation To Use Electronic Resources For Learning?*
   Aqueena Alexander (UG)
   The Lesley H. and William L. Collins College of Professional Studies

2. *Proper Access to Education Regarding Vaccinations and Pandemics on College Campuses*
   Kongit Amaha (UG)
   St. John's College of Liberal Arts and Sciences

3. *Starting Points for Finding 'Rudimentary' Research & Resources on Crisis Communication Ethics: A Sustainable Sourcing and Processing Approach*
   Rose Henry (UG)
   The Lesley H. and William L. Collins College of Professional Studies

4. *Community Based Climate Education in the Rockaways: Vulnerability in a Coastal Urban Setting*
   Isabella Heinzen (GR)
   St. John's College of Liberal Arts and Sciences

**Panel 3. <u>Healthcare and Pharmacy</u>**

1. *Dual Inhibition of HDAC and PI3K Signaling Pathways Inhibits Medulloblastoma Growth*
   Abel Daartey (GR)
   College of Pharmacy and Health Sciences

2. *Academic Service-Learning (AS-L) Project of Medication Reconciliation for Hospitalized Older Adults in an Advanced Pharmacy Practice Experience (APPE)*
   Trisha Khong (UG)
   College of Pharmacy and Health Sciences

3. *The Effect of Bile Acids on NAPE-PLD Activity and Oligomerization*
   Seth Greene (GR)
   College of Pharmacy and Health Sciences

4. *Prototyping of Portable Medicine Containers with Embossed Braille Using an Affordable Desktop 3D Printer*
   Vrashabh Sugandhi (GR)
   College of Pharmacy and Health Sciences

# Student Research Conference

## Acknowledgments

We would like to express our gratitude to the Research Advisory Council for their support and dedication to the Student Research Conference. Your work and efforts are key to the success of this important endeavor and are greatly appreciated.

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