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STUDENT
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APRIL 4-5, 2022



ST. JOHN'S
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STUDENT RESEARCH CONFERENCE



APRIL 4–5, 2022

MONDAY, APRIL 4

10 a.m.–2 p.m.

Taffner Field House

Student poster sessions highlighting
all scholarly disciplines

TUESDAY, APRIL 5

9:15 a.m.–3:15 p.m.

D'Angelo Center Ballroom

Undergraduate and graduate
student research presentations

5:15–7 p.m.

D'Angelo Center Ballroom

33RD
ANNUAL
Grants
RECEPTION



Poster Number: 1

Title: Direct Targeting of c-MET is a Novel Therapeutic Approach for High-Risk Neuroblastoma

Abstract: Neuroblastoma (NB) is a deadly extracranial solid tumor of childhood affecting 1 in 8000 children and represents 6-10% of all childhood cancer. NB is highly heterogeneous in terms of genetic, morphological, and biological characteristics and this corresponds to the metastasis and survival of NB patients. Current intensive therapies are not effective because most of the NB patients are diagnosed with high-risk disease conditions during their early childhood. Therefore, identifying new molecular therapeutic approaches to treat NB is important and urgently needed. c-MET is a proto-oncogene and is expressed on the surface of actively dividing epithelial cells. HGF ligand binds to and activates the c-MET receptor. Aberrant activation and autophosphorylation of the c-MET receptor facilitate pleiotropic effects by controlling several signaling cascades such as PI3K/AKT, MAPK/ERK, JAK/STAT, GSK3 β , and NF- κ B pathways. Oncogenic activation of c-MET has been reported in different cancers including NB. In the present study, we analyzed 1235 NB patient samples from three different datasets and found that high expression of c-MET strongly correlates with poor overall survival of NB patients. Further, we used a specific small molecule c-Met inhibitor and found that the inhibition of c-MET significantly inhibits the oncogenic potential of NB, by inhibiting NB cell proliferation, colony formation, inducing apoptosis, blocking cell cycle progression, and inhibiting the 3D spheroidal tumor growth. Overall, these results suggest that inhibition of c-MET is an effective therapeutic approach for NB, and further characterizing the c-MET and related oncogenic signaling pathways will provide new therapeutic targets for NB.

Keywords: Neuroblastoma, Pediatric Cancer, Cell Signaling Pathway, c-Met Inhibitor

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Poster Number: 2**Title:** Inhibition of CXCR2 inhibits Neuroblastoma growth and progression

Abstract: In pediatric oncology, High-risk neuroblastoma (NB) represents a major clinical challenge due to tumor metastasis, drug resistance, relapse, and treatment-related toxicities. Also, the long-term survival of NB patients is still less than fifty percent. Targeted therapy, based on molecular typing of neuroblastoma, is the most precise form of treatment. Particularly, CXC chemokine receptor 2 (CXCR2) is one of the molecular markers used in targeted therapies. As a member of the seven-transmembrane G protein-coupled receptor family, CXCR2 and its associated ligands have been increasingly implicated in tumor-associated processes. These processes include proliferation, invasion, metastasis, angiogenesis, chemoresistance, stemness, and phenotypic maintenance of cancer stem cells. An analysis of the 1464 primary NB patient dataset revealed a significant increase in CXCR2 gene expression correlate to poor survival rate in NB patients. Thus, the inhibition of CXCR2 and its downstream signaling pathways could significantly attenuate tumor progression. In this study, we used a potent and selective non-peptide inhibitor of a CXCR2 receptor and found that inhibition of CXCR2 inhibits NB cell proliferation and colony formation in a dose-dependent manner. Furthermore, it inhibits tumor formation and growth in an NB 3D-spheroid tumor model. In a dose-dependent manner, the CXCR2 antagonist induces apoptosis and blocks cell cycle progression in comparison to control. Moreover, gene expression analysis has shown that the CXCR2 antagonist significantly reduces the mRNA expression of specific CXCR2 pathway targets such as GLIPR1, BACH2, c-JUN, and CXCR2 itself. Western blot assays further showed significant inhibition of CXCR2 and GLIPR1 proteins in a dose-dependent manner. Overall, our data demonstrate that inhibition of the CXCR2 pathway leads to inhibit NB growth, and is an effective therapeutic approach for NB.

Keywords: Neuroblastoma, pediatric cancer, CXCR2**Primary Author:**

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Poster Number: 3**Title:** Inhibition of PLK1 Induces Mitotic Cell Death and Inhibits Growth in Pediatric Neuroblastoma

Abstract: Tumorigenesis mainly depends on the activation of oncogenes and the inactivation of tumor suppressor genes. Most of these proto-oncogenes and tumor suppressor genes play an important role in regulating the cell cycle progression. PLK1 is a member of the polo-like kinase family of serine/threonine protein kinases and is widely expressed in humans and plays an important role in regulating the cell cycle progression. PLK1 has numerous regulatory roles in the cell cycle including G2/M transition, chromosomal segregation, spindle assembly maturation, and mitotic exit. PLK1 also has a functional niche beyond mitosis, it regulates DNA damage response, DNA replication, transcription, translation, chromosomes dynamics, and checkpoint adoption. High levels of PLK1 are restricted to actively dividing cells such as hair follicles and embryonic cells. Elevated levels of PLK1 have been reported in different cancers including Neuroblastoma (NB). NB is the most prevalent heterogeneous solid tumor that develops during the early embryonic stage from the sympathetic nervous system. NB is one of the leading causes of death in children and accounts for 15% of all pediatric cancer-related deaths. In this present study, we observed the upregulation of PLK1 in NB by analyzing 1235 NB patient samples from three different patient datasets. Further, we used a specific small molecule PLK1 inhibitor to inhibit NB. PLK1 inhibition significantly inhibits NB cell proliferation, colony formation, 3D spheroidal tumor growth, and induces apoptosis in a dose-dependent manner. Further, PLK1 inhibition inhibits NB cell cycle progression at the G2/M phase and induces mitotic cell death. We also observed a dose-dependent inhibition of PLK1 cascade protein at both mRNA and protein levels. Overall, our data suggest that the inhibition of PLK1 inhibits the oncogenic potential of NB, and is a novel therapeutic approach for pediatric NB.

Keywords: Neuroblastoma, HMN-214, PLK1**Primary Author:**

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Poster Number: 4**Title:** Pharmacologic Inhibition of the Menin-MLL Interaction Blocks Neuroblastoma Progression

Abstract: Controlling epigenetic factors, such as histone methyltransferases and demethylases, has recently emerged as a way of overcoming cancer progression and drug resistance. Histone methyltransferases play a crucial role in regulating epigenetic modifications by controlling methylation and demethylation of histone proteins at lysine residues. H3K4-methyltransferase enzyme or MLL1/ COMPASS like-complex is responsible for H3K4 trimethylation (H3K4me3) and strongly correlates with the global gene expression levels during early embryonic development, and cancer progression. MLL1/ COMPASS like-complex includes MLL1, WDR5, RBBP5, ASH2L, DPY30, and Menin proteins. MLL1/ COMPASS like-complex promotes the transcription of specific target genes such as NUP98, SOX9, ATF-4, and HOX genes, which further promotes the stem cell state by enhancing the maintenance of active chromatin for pluripotency genes. Menin is a mysterious and ubiquitously expressed nuclear protein that could either promote or suppress tumorigenesis. In the present study, we used a specific small-molecule inhibitor that inhibits Menin-MLL1 protein-protein interaction to disrupt the MLL1/ COMPASS-like complex. Menin-MLL1 inhibition significantly inhibits cell proliferation in different NB cell lines, inhibits colony formation and growth, induces apoptosis, and blocks cell cycle progression in NB cells. Further inhibition of Menin-MLL1 interaction inhibits NB 3D spheroidal tumor growth in a dose-dependent manner. Additionally, we observed a significant reduction in the overall H3K4me3 histone marks by Western blot analysis. Overall, our data demonstrate that NB is regulated by complex epigenetic interplay, and direct epigenetic targeting strategies are a novel therapeutic approach for NB. In our future efforts, we will perform in vivo tumor studies using NB mice models to further establish this therapeutic approach.

Keywords: Neuroblastoma, Epigenetics, Pediatric cancer, H3K4me3**Primary Author:**

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Poster Number: 5

Title: Targeting the WEE1 Kinase as a Molecular Targeted Therapy for Neuroblastoma

Abstract: High-risk neuroblastoma (NB) is a solid pediatric tumor that develops from the extracranial sympathetic nervous system. Despite recent advancements in therapeutic regimens of dose-intensive chemotherapies, radiation, and surgery NB often relapses as a metastatic and drug-resistant tumor. These issues further mandate the identification and development of novel therapeutic approaches for NB treatment. Cdk1 in combination with cyclin B1, and Cdk2 with cyclin E regulate the G2/M checkpoint, and G1/S checkpoint respectively, to obstruct the cells from proceeding into mitosis with genomic DNA damage. Wee1, a tyrosine kinase, regulates the phosphorylation of Cdk1 and Cdk2 at tyrosine residue (Tyr15) in response to DNA damage and makes them inactive. Previous studies have reported high expression of Wee1 in NB patients and associate Wee1 with an overall poor prognosis. In the present study, we analyzed NB patient datasets and found that Wee1 expression is strongly correlated with poor overall survival of NB patients. Inhibition of Wee1 promotes the Cdk1 and Cdk2 activation and is more reliant on an intact G2-M checkpoint for survival and mitosis. Therefore, inhibition of Wee1 inhibits NB proliferation and sensitizes cancer dependent on a functional G2/M checkpoint to DNA-damaging therapy. In the present study, we used a specific small molecule Wee1 inhibitor to inhibit NB. Wee1 inhibitor significantly inhibits NB cell proliferation, colony formation, blocks cell cycle progression, and induces apoptosis in NB cells in a dose-dependent manner. Further Wee1 inhibition inhibits NB 3D spheroidal tumor growth in a dose-dependent manner. Overall, our results suggest that inhibition of Wee1 is an important therapeutic approach alone or in combination with current NB therapies.

Keywords: Neuroblastoma, WEE1, Therapy

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Poster Number: 6**Title:** Rutinose glycosides as model compounds for the design of conformational glycomimetics

Abstract: The biological activity of carbohydrates extends far beyond their classical roles as energy source or structural building blocks. The molecular recognition of sugars by protein receptors can be found in many biological processes including cell-cell communication, immune response, fertilization, protein recycling, infection, among many others. The success of protein-carbohydrate interactions is conditioned to the fulfillment of conformational requirements imposed by the recognition site in the protein over the, inherently flexible, carbohydrate ligand. Hence, the study of the conformational preferences of saccharides is fundamental for the understanding of protein-carbohydrate interactions. The flexibility of sugars is mainly dependent on the free rotation around the interglycosidic bond and the hydroxymethyl group (C5-C6), being saccharides with (1-6) connections among the most flexible structures. The rotation around C5-C6 is, in turn, determined by the configuration of the stereocenter C4, the type of substitution on hydroxyl C6, the configuration of the anomeric carbon, and the nature of the aglycone substituent. Towards a better understanding of the effects that the aglycone substituent has over the conformational properties around C5-C6 bond, we are designing and synthesizing a series of model glycosides of rutinose (Rha(16)GlcOR) and studying their conformational preferences in solution by NMR. Given the inherent flexibility of the (16) linkage, the hydrophobic nature of the rhamnose moiety, and the simplicity of the NMR spectra, rutinose constitutes a convenient model saccharide for performing these studies. We have synthesized a series of six rutinoides of alkyl alcohols with different molecular volumes to shed light about the influence of the aglycones steric properties over the conformational preferences around interglycosidic linkages in these saccharides. Based on the conformational analysis of the interglycosidic linkage by NMR, we found a conformational shift from gt conformer to a tg conformer as the bulkiness of anomeric substituent increases. This finding thus opens the door to further studies related to the correlation between conformation and binding affinities in saccharides using fish protein (CSL-3) as the receptor for testing the affinity of rutinoides by Isothermal calorimetry (ITC).

Keywords: Conformational analysis, Rutinose Glycosides, Glycomimetics**Primary Author:**

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Poster Number: 7

Title: Establishment and Characterization of a Topotecan Resistant Lung Cancer NCI-H460/TPT10 Cell Line and a Tumor Xenograft Model

Abstract: While topotecan (TPT) is a chemotherapeutic drug in treating lung cancer, the development of TPT resistance in tumors reserves as a major obstacle to chemotherapeutic success. Therefore, a better understanding of the mechanisms of TPT resistance is critical. In this study, the first topotecan-resistant human non-small cell lung cancer (NSCLC) cell line, termed NCI-H460/TPT10, was established from the parental NCI-H460 cell line. NCI-H460/TPT10 cells exhibited a 394.7-fold resistance to TPT, and cross-resistance to SN-38, mitoxantrone, and doxorubicin, compared to parental NCI-H460 cells. Overexpression of ABCG2 localized on the cell membrane, but not ABCB1 or ABCC1, was found in NCI-H460/TPT10 cells, indicating that ABCG2 was likely to be involved in TPT-resistance. This was confirmed by the abolishment of drug resistance in NCI-H460/TPT10 cells after ABCG2 knockout. Moreover, the involvement of functional ABCG2 as a drug efflux pump conferring multidrug resistance (MDR) was indicated by low intracellular accumulation of TPT in NCI-H460/TPT10 cells, and the reversal effects by ABCG2 inhibitor Ko143 and cabozantinib. The NCI-H460/TPT10 and its parental cell line were further used to establish in vivo tumor xenograft mouse models, which verified their capability to serve as clinically relevant models for drug screening and the development of targeted strategies to overcome ABCG2-mediated MDR in NSCLC.

Keywords: Topotecan, NCI-H460/TPT10, Multidrug resistance, ABCG2

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Poster Number: 8

Title: Methyl-canthalidimide (MCA) can induce apoptosis by activating UNC5B-Netrin-1-DAPK pathway in hepatocellular carcinoma

Abstract: In this study, we investigated the underlying mechanism of action of methyl-canthalidimide (MCA), a cantharidin (CTD) analog, as an anticancer drug, in resistant cancer cells overexpressing either ABCB1 or ABCG2 transporters and in cisplatin-resistant cancer cells. The results indicated that: (i) MCA was efficacious in the ABCB1-overexpressing cell line, KB-C2, the ABCG2-overexpressing cell line, NCI-H460/MX20 and in the cisplatin resistant cancer cell lines, KCP-4 and BEL-7404/CP20; (ii) MCA induced apoptosis in both BEL-7404 and BEL-7404/CP20 cancer cells and arrested both BEL-7404 and BEL-7404/CP20 cancer cells in the G0/G1 phase of the cell cycle; (iii) MCA upregulated the expression level of the protein, unc-5 netrin receptor B (UNC5B) in HepG2 and BEL-7404 cancer cells. (iv) MCA can downregulate CIP2A expression level to activate UNC5B-Netrin-1-DAPK apoptosis pathway in hepatocellular carcinoma cells. Overall, our results indicated that MCA's efficacy in

multiple cancer cells is due to the activation of UNC5B-Netrin-1-DAPk apoptosis pathway and cell cycle arrest in the G0/G1 phase.

Keywords: methyl-canthalidimide (MCA); multidrug resistance (MDR); unc-5 netrin receptor B (UNC5B)

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Poster Number: 9

Title: PBK/TOPK inhibitor OTS964 resistance is mediated by ABCB1-dependent transport function in cancer: in vitro and in vivo study

Abstract: Accumulating reports have suggested that acquired drug resistance is linked to ATP-binding cassette sub-family B member 1 (ABCB1) overexpression. OTS964 is a potent inhibitor targeting to PDZ-binding kinase (PBK)/T-lymphokine-activated killer cell-originated protein kinase (TOPK). In present study, we aimed to explore the relationship between ABCB1 transporter and the regulation of OTS964 efficacy. Our results indicated that ABCB1 overexpression significantly desensitized both drug-selected and gene-transfected cells, which overexpress ABCB1, to OTS964 and that this drug resistance can be antagonized by a verified ABCB1 inhibitor. Also, similar trend was observed in tumor-bearing mice. Furthermore, OTS964 stimulated ATPase activity of ABCB1 and upregulated expression levels of ABCB1, resulting in induced resistance to other ABCB1 substrate-drugs, such as paclitaxel. OTS964 received a comparable affinity score and can dock into the substrate-binding site of human ABCB1 protein. Altogether, this study presents evidence that OTS964 is susceptible to ABCB1-mediated drug resistance and provides important indications for follow-up clinical use of OTS964.

Keywords: T-LAK cell-originated protein kinase (TOPK); PDZ-binding kinase (PBK); OTS964; ATP-binding cassette sub-family B member 1 (ABCB1); multidrug resistance (MDR)

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Poster Number: 10**Title:** Reversal of ABCG2-mediated multidrug resistance by tepotinib in vitro and in vivo

Abstract: Overexpression of ABCG2 transporter in cancer cells has been linked to the development of multidrug resistance (MDR), an obstacle to cancer therapy. In the present study, we reported for the first time that the MET inhibitor tepotinib can reverse ABCG2-mediated MDR in vitro and in vivo by reversibly inhibiting ABCG2 drug efflux activity, therefore enhancing the cytotoxicity of substrate drugs in drug-resistant cancer cells. In mice bearing drug-resistant tumors, tepotinib increased the intratumoral accumulation of ABCG2 substrate drug topotecan and enhanced its antitumor effect. Therefore, our study provides a new potential of repositioning tepotinib as an ABCG2 inhibitor and combining tepotinib with substrate drugs to antagonize ABCG2-mediated MDR.

Keywords: cancer, multidrug resistance, ABCG2**Primary Author:**

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Poster Number: 11**Title:** Pharmacists and Their Role in Promoting Vaccine Confidence

Abstract: A patient's willingness to receive the COVID-19 vaccine may vary when it comes to their beliefs and current knowledge about the vaccine. It is important to evaluate how pharmacists can influence their communities and identify how pharmacists impact patient-centered decisions. Over a one-month period, a secure, IRB-approved survey was distributed via email and social media platforms such as Instagram, LinkedIn, and Facebook for completion by pharmacists and pharmacy interns over the age of 18. The survey consisted of 16 multiple choice questions and 9 free response questions to collect information regarding demographics, familiarity with vaccine hesitancy/confidence, barriers to building vaccine confidence and resources needed to build vaccine confidence. Thirty-seven individuals responded to this survey with a majority being licensed pharmacists for 6-10 years. 61% of respondents were extremely familiar with the term vaccine hesitancy whereas 46% of respondents were familiar with vaccine confidence. There are various barriers seen in practice that impact vaccine confidence such as social media, misinformation, and health disparities. Further commentary from respondents with regard to combatting these barriers included the need for time to combat misinformation, provide statistics and hold honest conversations with patients, and stop the spread of misinformation via social media. The results from this survey highlight that though there are many barriers to building vaccine confidence, most can be dispelled if pharmacists had more time with patients to discuss the benefits of the vaccine.

Keywords: COVID-19, Vaccines, Pharmacy, Vaccine Hesitancy, Public Health**Primary Author:**

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Poster Number: 12**Title:** Delirium in Critically Ill Pediatric Patients

Abstract: Purpose: Delirium is linked to an increase in morbidity and mortality in critically ill pediatric patients, yet is often misdiagnosed. The incidence is 5 to 57%. Clinical presentation ranges from patients being hyperactive, hypoactive, to having mixed delirium. Mortality rates of 20% have been reported. There is a significant association between delirium and poor clinical outcomes, including increased duration of mechanical ventilation and increased length of stay in the pediatric intensive care unit (PICU). The purpose of this report is to identify the incidence and risk factors associated with delirium in critically ill children and describe options in its prevention and management. Methods: A literature search was performed using PubMed and Embase, narrowing search criteria to terms such as delirium, pediatrics, pediatric intensive care unit, delirium in the pediatric ICU or PICU, and benzodiazepines AND delirium. This search identified in 34 studies, consisting of case series (2), cohort studies (10), prospective observational and/or descriptive studies (7), retrospective observational studies (10), prospective, double-blind equivalence trial (1), and literature reviews (2). Along with the DSM-V diagnostic criteria, screening tools include the Cornell Assessment of Pediatric Delirium (CAPD), Pediatric Confusion Assessment Method - Intensive Care Unit (pCAM-ICU), Preschool Confusion Assessment Method for the ICU (psCAM-ICU), and the Delirium Rating Scale-revised version (DRS-R98). The CAPD, pCAM-ICU and the psCAM-ICU are validated and reliable in pediatric patients, whereas DRS-R98 has not been tested in children specifically. CAPD screening tool is validated in patients in critically ill children aged 0-18 years, with a score 9 indicating a positive screening for the presence of delirium. The pCAM-ICU is validated in critically ill children 5 years old, while the psCAM-ICU is validated in critically ill infants and children < 5 years old. Risk factors for the development of delirium include the prescription of benzodiazepines and anticholinergic agents, mechanical ventilation, developmental delay, and environmental factors. Modifiable risk factors include the use of benzodiazepines and altering the environmental conditions of the PICU. Results: From the reports, there were 6,136 patients described. Age range was 0 days - 21 years. Patients were treated with antipsychotic agents and nonpharmacological approaches to mitigate the development of delirium. Haloperidol (n=67) (0.025mg - 1mg), risperidone (n=73) (0.1mg - 4mg), quetiapine (n=58) (0.2mg - 7mg), and olanzapine (n=35) (0.625mg - 1.25mg) were administered to children in the PICU. Patients were administered 1 to 2 doses. Improvement in delirium scores was observed within 30 minutes to hours, and even days for some patients. The majority of patients recovered in two days. No significant adverse events were observed with olanzapine. Two patients experienced dystonia from haloperidol which responded well to biperidine. Other adverse events included electrolyte disturbances, cardiac conduction abnormalities, and prolonged QT intervals. Nonpharmacological measures were provided in conjunction with antipsychotic therapy. Seven patients died of their underlying disease and three patients received long-term antipsychotic treatment. PICU length of stay was significantly higher for children diagnosed with delirium. Initiation of benzodiazepines was a strong, independent predictor of delirium, quadrupling the rate of delirium. Substituting benzodiazepines with dexmedetomidine and clonidine may decrease delirium rates in critically ill children. Conclusion: Delirium in children should be considered using screening tools and prevented when possible. Nonpharmacological therapy, such as environmental and psychosocial interventions play an important role in the treatment of delirium, followed by use of antipsychotics to treat the distressing or life-threatening symptoms associated with delirious behavior. The majority of the patients are successfully treated with haloperidol or risperidone. Clinicians should be aware of modifiable risk factors, such as limiting the use and duration of benzodiazepines for sedation and current pharmacological and nonpharmacological methods to treat it. The management of delirium is essential in improving outcomes in critically ill pediatric patients.

Keywords: Pediatrics, Literature Review, Pharmacy

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Poster Number: 13

Title: Novel role of Lipocalin-type Prostaglandin D2 Synthase and its metabolites in regulation of hepatic metabolism: Nonalcoholic fatty liver disease

Abstract: The prevalence and diagnosis of nonalcoholic fatty liver disease (NAFLD) are on the steep rise worldwide. NAFLD is strongly associated with obesity and insulin resistance through molecular, biochemical, and complex immune mechanisms. However, the underlying mechanisms involved in the pathogenesis of NAFLD are not fully understood yet. Previously, we demonstrated that L-PGDS knockout mice developed insulin resistance but interestingly remained lighter despite consuming a high-fat diet for 14 weeks yet developed NAFLD faster and eventually progressed to the more severe non-alcoholic steatohepatitis (NASH). Briefly, L-PGDS catalyzes the isomerization of PGH₂, a common precursor of the two series of prostaglandins, to produce PGD₂. PGD₂ primarily functions through DP1 and DP2 receptors. Therefore, parallel to previous in vivo findings, we established an in vitro model using hepatic cancer HepG2 cells treated with a combination of free fatty acids (oleic and palmitic acid) and exposed to AT-56, a selective enzymatic inhibitor of L-PGDS. Interestingly, treatment with AT-56 significantly increased lipid accumulation compared to control. Furthermore, lipogenesis marker genes like LXR- α , SREBP-1c, FAS, and CD36 were also elevated after AT-56 treatment, supporting the notion that L-PGDS plays a key role in hepatic lipid metabolism. Therefore, we hypothesize that modulation of the PGD₂ signaling pathway will restore hepatic insulin resistance and fully or partially contribute to decreasing hepatic lipid accumulation. The long-term goal of this study is to identify the role of PGD₂ signaling in diabetes/or obesity induced NAFLD using a 3D spheroid liver cell model and screen selective PGD₂ modulators which may lead to a novel therapeutic target for future fatty liver disease treatment.

Keywords: L-PGDS, NAFLD, insulin Resistance

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Poster Number: 14

Title: Dacomitinib Polymeric Nanoparticles for Non-Small Cell Lung Cancer (NSCLC) Treatment

Abstract: Non-Small Cell Lung Cancer (NSCLC) ranks second among most diagnosed cancers, globally causing approximately 1.8 million deaths in 2020. Epidermal growth factor receptor - tyrosine kinase inhibitors (EGFR-TKIs) bind reversible or irreversibly to EGFR suppressing the tumor progression. Dacomitinib, is a second generation, irreversible TKI approved for the treatment of NSCLC. Currently, dacomitinib (DMB) is administered as an oral tablet marketed as VIZIMPRO. However, this oral therapy is characterized by several systemic side effects that include skin reactions and diarrhea. To address these side effects, pulmonary delivery of these TKI as nanocarrier systems (polymeric nanoparticles, solid lipid nanoparticles, liposomes) has been an avenue of interest in recent times. This work focuses on the development of dacomitinib poly (lactic-co-glycolic acid) nanoparticles (DMB PLGA NPs) that can be delivered through pulmonary route. The DMBNP were prepared using single emulsion solvent evaporation technique resulting in NPs with particle size of 205.11 ± 10.1 nm, polydispersity index of 0.17 ± 0.41, zeta potential of (-) 20.3 ± 4.1 mV, and encapsulation efficiency of 55.1 ± 6.46% w/w. The drug encapsulation was confirmed using solid state characterization studies. In vitro aerosolization studies of DMBNP showed excellent aerodynamic properties with mass median aerodynamic diameter of 3.77 ± 0.7 μm and fine particle fraction of 80.86 ± 1.02 % upon nebulization. The DMNP exhibited improved cytotoxicity with IC₅₀ of 1.75 nM on HCC 827 cells after 72 h treatment. We hypothesize that this NP delivery approach can improve therapeutic efficacy and lower the side effects.

Keywords: Non Small cell Lung Cancer, Dacomitinib, Nanoparticle

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Poster Number: 15

Title: Inhalation delivery of bedaquiline-loaded cubosomes (BQLC) for the treatment of non-small cell lung cancer (NSCLC)

Abstract: Non-small cell lung cancer is the leading cause of cancer-associated mortalities globally, and there is a constant need for new and effective treatment options. For NSCLC treatment, the inhalation route of drug delivery is highly beneficial as it delivers drugs directly into the lungs, requires lower doses, and limits systemic toxicity. Here, we repurpose Bedaquiline (BQ), an anti-tuberculosis drug, for NSCLC treatment by encapsulating it in cubosome nanocarriers. This study developed BQ-loaded cubosomes (BQLC) by the single-emulsion solvent evaporation technique. The BQLC formulation was evaluated for physicochemical parameters and solid-state characteristics. Further, we evaluated the aerosolization performance of BQLC using Next Generation Impactor. Finally, in vitro cell culture studies (MTT, Apoptosis assay, Clonogenic assay, Scratch assay, and 3D spheroid study) were performed to determine the anticancer efficacy of the BQLC nanocarriers against NSCLC (A549) cells. The BQLC displayed a particle size of 150.2 ± 5.1 nm, a zeta potential of (+) 35.4 ± 2.3 mV, and an encapsulation efficiency of 51.85 ± 4.83% w/w. The solid-state characterization (DSC and PXRD) confirmed drug encapsulation within the cubosomes. For achieving deposition in the respiratory airways, an aerodynamic diameter < 5 micrometer is desired; however, the BQLC formulation was viscous (50 cP) resulting in an aerodynamic diameter of 5.12 ± 0.03 m, typical for jet nebulizers. So, to reduce the viscosity, BQLC was diluted with water (1:1), and the diluted BQLC (25 cP) displayed enhanced aerosolization performance with MMAD of 4.21 ± 0.53 m and fine particle fraction (FPF) of ~80%. Further, the BQLC displayed rapid internalization by A549 cells and enhanced cytotoxicity with a ~3-fold reduction in IC50 compared to free BQ in NSCLC cells after 48 h treatment. The BQLC suppressed cell proliferation via the apoptotic pathway, further inhibiting colony formation, and cancer metastasis in vitro. Additionally, BQLC resulted in a 2-fold reduction in tumor volume compared to control in 3D spheroid studies and further confirmed the anticancer efficacy of cubosomal nanocarriers in NSCLC treatment. The results suggest that BQLC may be a promising NSCLC therapy due to excellent aerosolization performance and enhanced anticancer activity. Also, this is the first study exploring the potential of cubosomes suspension for inhalation therapy.

Keywords: Non-small cell lung cancer, Bedaquiline, Cubosomes, Nebulization, Inhalation therapy

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Poster Number: 16**Title:** Solubility enhancement and improved efficacy of delamanid using cyclodextrin inclusion complex

Abstract: Pulmonary tuberculosis (TB) is caused by *Mycobacterium tuberculosis* (Mtb) and has the highest mortality rate among infectious diseases. The medications for Mtb are often taken orally and have longer treatment regimens resulting in severe adverse effects and poor patient compliance. The use of a pulmonary delivery system is an attractive option because the drug avoids first pass metabolism due to its direct application to the lungs thus reducing the dose needed, decreases systemic adverse effects due to local delivery, enhanced bioavailability, and rapid onset of action. Delamanid (DLD), an antituberculosis drug, has poor aqueous solubility and in this study, we aim to improve its aqueous solubility using cyclodextrins complexation. Cyclodextrins are hollow truncated cone shaped cyclic oligosaccharides with a hydrophilic outer surface and a lipophilic cavity capable of attracting and entrapping lipophilic drugs. Cyclodextrin (0-200 mM) and the drug (2 mg) were mixed in an aqueous solution using bath sonicator and left for overnight stirring to facilitate the complexation. We screened sulfobutyl ether- β -cyclodextrin (SBE- β -CD) and Hydroxypropyl- β -cyclodextrin (HP- β -CD) for solubility enhancement and found that HP- β -CD resulted in 54-fold increase in solubility compared to 27-fold increase by SBE- β -CD. The stability constant (K_c ; 265×10^{-1}) and complexation efficiency (CE; 8.5×10^{-4}) suggest formation of a stable inclusion complex of DLD and HP- β -CD in 2:1 ratio. The solid-state characterization studies (FTIR, DSC and PXRD) further confirmed the successful complexation and amorphous nature of DLD in HP- β -CD inclusion complex. In bacterial studies, the minimum inhibitory concentration of DLD-CD complex was significantly reduced (4-fold) as compared to free DLD in Mtb (H37Ra strain). In conclusion, we increased the aqueous solubility of the DLD through cyclodextrin complexation and improved its efficacy in vitro.

Keywords: Delamanid, Cyclodextrin complex, *Mycobacterium tuberculosis***Primary Author:**

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Poster Number: 17

Title: Exploration of cyclic and acyclic replacements of the propyl linker of cjoc42 for enhanced binding and anti-cancer activity

Abstract: Gankyrin is an ankyrin-repeat oncoprotein involved in various protein-protein interactions (PPIs) resulting in the regulation of numerous oncogenic pathways. Gankyrin is overexpressed in a variety of cancers, such as liver, breast, and lung cancer, as well as others. Therefore, gankyrin has been identified as potential target for the treatment of these cancers. Gankyrin has the capacity to regulate the expression levels of various tumor suppressor proteins by functioning as a proteasomal chaperone. The first small molecule gankyrin inhibitor, cjoc42, was identified in 2016 and demonstrated an ability to inhibit liver cancer proliferation. Molecular modeling studies have indicated the propyl linker of cjoc42 could be modified to enhance both gankyrin binding and subsequently anti-proliferative activity. Therefore, we developed an extensive SAR for this propyl linker by synthesizing a series of cjoc42 derivatives, and then evaluated them for their gankyrin binding ability as well as their ability to inhibit the proliferation of gankyrin overexpressing liver, lung, and breast cancer cell lines. Herein, we report the synthesis and evaluation of these derivatives.

Keywords: Gankyrin, Protein-protein interaction, anti-cancer

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Poster Number: 18**Title:** Synthesis of a series of amide-based cjoc42 derivatives as a potential gankyrin-inhibitors

Abstract: Gankyrin is an ankyrin-repeat protein that is overexpressed in certain cancers and is responsible for cell proliferation, tumor initiation, and cancer progression. It is understood that gankyrin is important to the development of many cancer types, including lung, breast, and liver cancer. Consequently, gankyrin and its various protein-protein interactions are prospective therapeutic targets for inhibiting the growth of certain cancers. In 2016, the first small molecule inhibitor of gankyrin, cjoc42, was discovered and demonstrated antiproliferative activity against liver cancer cells. Previous work from our group has shown that replacing the sulfonate ester of cjoc42 with an amide group significantly improved gankyrin binding while enhancing antiproliferative activity. Therefore, we are synthesizing a series of amide-based cjoc42 derivatives which explore the substitutions on the phenyl ring attached to this amide group. These phenyl substitutions are aimed at further improving gankyrin binding and subsequently enhancing antiproliferative activity. Herein we describe the synthesis of these cjoc42 derivatives, and future biological evaluations will determine their therapeutic utility and their ability to inhibit gankyrin.

Keywords: anticancer target, medicinal chemistry, gankyrin**Primary Author:**

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Poster Number: 19**Title:** Cost Effectiveness Analysis of Empagliflozin vs. Ertugliflozin in Patients with Type-2 Diabetes

Abstract: **OBJECTIVES:** Empagliflozin, a sodium-glucose co-transporter-2 (SGLT-2) inhibitor, has been used to treat individuals with type 2 diabetes mellitus (T2DM). Another SGLT-2 inhibitor, ertugliflozin, was recently approved for these patients. The purpose of this study was to conduct an economic evaluation of empagliflozin compared to ertugliflozin. **METHODS:** A Markov model was developed with the defined health states (e.g., diabetes alone, diabetes combined with complications such as myocardial infection, stroke, hospitalizations for heart failure, and coronary revascularization) that are commonly observed in patients with T2DM. Effectiveness was estimated using quality-adjusted life years (QALYs). We adopted the US payer perspective, including direct costs only. A lifetime horizon was selected. Transition probabilities, costs, and utilities were derived from clinical studies and published literature. An incremental cost-effectiveness ratio (ICER) was estimated as a ratio of the difference in costs to the difference in QALYs between these two drugs. A discount rate of 5% was applied to both costs and consequences. Deterministic and probabilistic sensitivity analyses were performed. **RESULTS:** Results from base-case analysis showed higher lifetime accumulated costs (\$190,635 and \$154,725) and lower accumulated effectiveness (6.12 QALYs and 6.18 QALYs) of empagliflozin compared to ertugliflozin. Patients with ertugliflozin were projected to experience fewer events of heart failure, stroke and revascularization procedure over lifetime horizon but higher event rate for myocardial infarction. The calculated ICER indicated that ertugliflozin was less costly and more effective compared to empagliflozin. Results from sensitivity analyses indicated the base-case

results were robust to variations of all assumptions and input parameters. **CONCLUSIONS:** Results from cost-effectiveness analysis suggested that ertugliflozin was dominant compared to empagliflozin from US payer perspective over a lifetime horizon.

Keywords: comparative effectiveness, economic evaluation, trial based economic evaluation

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Poster Number: 20

Title: Systematic Review of Digital Health Interventions used by Clinical Pharmacists in Practice

Abstract: In collaboration with other health care professionals, clinical pharmacists (CPs) play an essential role in providing patient-centered care. Due to advances in informatics and technology, integrating a digital intervention in healthcare has gained increasing popularity. A digital health intervention such as telemedicine, text-messaging, wearable devices, or mobile applications has led to the evolution of clinical pharmacist support to their patients. The purpose of this study was to systematically review CP-led digital interventions to improve patients health-related outcomes. Databases such as PubMed and Cochrane Database of Systematic Reviews were searched by using relevant keywords that combined numerous terms indicating pharmacy with those meaning digital interventions. A total of 19 studies were included in the analysis. Of these 19 studies, the most used digital intervention by CPs was telephone use (n = 15), followed by a web-based tool (n = 2) and a mobile app (n = 2). By providing these interventions, clinical pharmacists attempted to help patients improve lab values (e.g., blood pressure, HbA1c), adherence, drug-related outcomes, patients quality of life, satisfaction, physical activity, survival, lower health service use, and health-related risks. This study found positive impacts of mobile apps on drug-related outcomes of the patients and their use of healthcare services. Our study findings imply that clinical pharmacists can use more diverse technologies to improve patients outcomes. Impacts of the interventions, using such technologies, can be evaluated in future studies.

Keywords: Pharmacist, Clinical Pharmacist, Pharmacy intervention, Digital health, Technology, Mobile health, Telehealth, Electronic health, Patient counseling, Remote consultation

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Poster Number: 21

Title: HJP-272, an endothelin-1 receptor antagonist in cancer cell migration and invasion.

Abstract: Endothelins are a family of versatile peptides composed of 21 amino acids with three isoforms: ET-1, ET-2, and ET-3. These are involved in various biological processes such as regulation of vascular tone, humoral homeostasis, and neural crest development. More recent investigations have linked ET-1 and cancer developments. Specifically, ET-1 is involved in the activation of a diverse range of pathways involved in tumor progression. Therefore, we set out to investigate the role of a novel ET-1 receptor antagonist, HJP-272 in vitro. We evaluated the role of HJP-272 in the ET-1 overexpressing cell lines, MDA-MB-231 (TNBC) and A549 (NSCLC). We assessed migration and invasiveness using a Matrigel Invasion Chamber. Our data, indicates a concentration dependent decrease in cancer cell migration and invasion while exhibiting no effect on viability up to a 100 M concentration. We anticipate that HJP-272 will also inhibit epithelial-to-mesenchymal transition (EMT) in cancer cells. Furthermore, exploring the molecular pathways in cancer will help us understand the mechanism of action of HJP-272 and shed light on its therapeutic potential.

Keywords: Endothelin, HJP-272, Cancer

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Poster Number: 22

Title: Investigation of benzimidazole derivatives and their metal-complexes as potential chemotherapeutic agents

Abstract: Cancer remains a major public health challenge and continues to affect the health and well-being of many millions of people in the United States and worldwide. This non-communicable disease is the second leading cause of death, and responsible for the death of several hundreds of people worldwide. Severe adverse effects and drug resistance to current therapeutic agents greatly limit our ability to treat various types of cancer. To address these limitations, scientists are researching new and improved anticancer agents. The Yoganathan lab is investigating benzimidazole-derived small molecules as potential anticancer agents. Benzimidazole is a privileged heterocyclic scaffold and is found in many therapeutic agents. We are interested in the chemical synthesis and biological evaluation of benzimidazole derivatives and their metal-complexes as an important class of potential anticancer compounds. Our lab has successfully developed a simple, scalable chemical method to synthesize a small library of benzimidazoles from commercially available aryl-carboxylic acid and various 1,2-diaminobenzenes. Current efforts are focused on the synthesis of a diverse library of aryl-benzimidazoles that are capable of chelating transition metal ions. Moreover, we are evaluating synthesizing and studying the copper, iron and zinc complexes of these benzimidazoles using UV-Vis spectroscopy. Our goal is to perform a bioactivity guided approach to fine tune the chemical structure of metal binding benzimidazoles, and discover new anticancer leads.

Keywords: cancer, benzimidazoles, metal complexes, medicinal chemistry, anti-cancer agents

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Poster Number: 23

Title: Is there a relationship between Health Policy and Major Health Diseases In Nigeria? Exploring the intersection of Health Policy and Its Effects on the Nigerian Healthcare delivery system and common diseases

Abstract: Nationally, Public Health advocates for groundwork community development to elevate a healthy lifestyle and environment. Nigeria, one of the populous countries in Africa has various inadequacies on a fundamental right: Healthcare. Diseases such as Malaria, remain the leading cause of death in Nigeria. However, how are these diseases affected by Nigerian Public Health policies? After experiencing the public health policies on various clinics and hospitals while growing up in Nigeria, it is apparent that the Public Health Sector has attributed many difficulties in enacting sufficient laws that contribute to the onset of endemic diseases thus causing various casualties. Consequently, research has recently pinpointed the intersectionality between public health policy and disease prevention; Research within this topic is integral to the development of the healthcare sector within Nigeria, as well as the prevention of commonly identified diseases. Therefore, to prompt knowledge application in this distinct field, implementation and learning are crucial for developing a healthy environment. Learning and Research will be conducted via analyzing past and current literature detailing the effects of the healthcare system due to insufficient public health policies in Nigeria. Research in public health policy will identify the roots and causation of widespread healthcare problems in Nigeria. This paper will also establish a parallel between public health policy and diseases, identify possible methods of reconciling inadequacies in the intersection of public health policy and disease, and advance understanding between public health policy and commonly identified diseases. Furthermore, this novel knowledge can be employed in the Nigerian healthcare sector and legislature to develop a framework for a routine health information system in all states and Local Government Areas.

Keywords: Health Policy, Public Health, Disease

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Poster Number: 24

Title: Attitudes of Speech Pathology Students, Faculty and People who Stutter to student pseudo-stuttering assignments.

Abstract: Background: Student disability simulation assignments are common in allied health professions. Pseudo-stuttering assignments are assigned by Speech-Language Pathology (SLP) faculty in order to develop empathy for People Who Stutter (PWS) by SLP students. The aim of this study was to examine attitudes toward pseudo-stuttering assignments. Methods: Participants included 218 SLP faculty, SLP students and PWS. A descriptive design email questionnaire consisting of closed and open-ended questions with typical case sampling was devised using Google forms. The questionnaires were globally disseminated to universities, SLP faculty and SLP students through email, social media and online SLP communities. Thematic analysis was conducted and themes such as attitudes to disability simulations were identified. Valid percentages and Chi square coefficients were calculated using the PSPP statistical software. Results and Discussion: SLP faculty members believe in the benefits of the pseudostuttering assignment differed greatly from SLP students opinions. SLP faculty supported the assignment but noted that students reported a level of discomfort with completing disability simulation assignments. It was found that students were more comfortable in completing an Augmentative Alternative Communication (AAC) simulation than either completing an aphasia or pseudostuttering assignment. However, more SLP students stated they would have completed the assignment if there were evidence-based research that it would not be offensive towards PWS. Whereas the overwhelming majority of students felt the assignment would be disrespectful towards PWS, the slight majority of PWS stated it would not be disrespectful. Furthermore, PWS were equally divided on feelings about if SLP students should complete pseudostuttering assignments publicly.

Keywords: Pseudostuttering, thematic analysis, communication disorders

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Poster Number: 25

Title: Analyzing the Impact of Race-Related Media Coverage on Perceived Discrimination and Symptoms of Depression

Abstract: Media presentations of race-related stories are highly prevalent. The aim of this study is to analyze how media coverage of race-related topics affect individuals perceived discrimination, stereotype confirmation concerns, and symptoms of depression. The results indicate that the effects of the race-related stories varied depending on the race of the participants, with race-related media being negatively associated with depression for Black and Latino individuals, but positively associated with stereotype confirmation concerns for White participants.

Keywords: Media, Race, Stereotype confirmation

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Poster Number: 26

Title: Assessing the Reactivity of Ethnic/Racial Identity in Response to Racial Discrimination

Abstract: Ethnic/racial identity (ERI) has been linked with exposure to discrimination, but it is unclear if ERI changes over time as exposure to discrimination varies. This longitudinal study examined the relations of discrimination to ERI in Black individuals. Across individuals, greater discrimination was associated with greater racial centrality, but within-individual variations in exposure to discrimination over time were not associated with changes in ERI. Findings have implications for identity-based interventions to reduce effects of discrimination.

Keywords: Discrimination, Ethnic/Racial Identity, Ecological Momentary Assessment

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Poster Number: 27

Title: Association of Marriage to Health Differs Among Black, Latino, American Indian/Alaska Native Groups

Abstract: Population-based studies have suggested that marriage is associated with positive health outcomes, such as cardiovascular disease (CVD) and cancer outcomes. (Aizer et al., 2013; Buja et al., 2017). Marital status may affect health through its relation to health risk factors including smoking, BMI, and eating habits (Cho et al., 2008; Lindstrom, 2010; Pennanen et al., 2014). However, there are cultural differences in the relations of marriage to health behavior (Ramsey et al., 2019; Schoenborn, 2004). There are significant racial and ethnic disparities in cardiovascular and cancer mortality (Heron, 2019; National Health Interview Survey, n.d.; Surveillance Epidemiology and End Result Program, 2021). The present study examines the intersection of race/ethnicity, gender and marital status in their relations to health risk factors while (Cole, 2009; Roxburgh, 2014). Data from 3 samples were used. Sample 1 (Black adults, n = 396; 52.14% women) and Sample 2 (Hispanic adults, n = 390, 48.85% women) were drawn from an NHLBI-funded study on racism and blood pressure. Sample 3 was drawn from an AHA-funded study on discrimination and allostatic load in American Indians/Alaskan Natives (AI/AN) (n = 303, 63% women). Results suggest that there may be differences among Black, Latino, and AI/AN adults in the relation of marriage to health risk factors. Contradicting previous literature, among Black individuals, marriage was not associated with any health risk factor. Married Latino couples were less likely to smoke, married AI/AN couples ate more unhealthy food. Gender differences in BMI among AI/AN peoples only emerged with marriage.

Keywords: Marriage, Health outcomes, Health disparities

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Title: Clinical and Non-clinical Factors Associated with Physical Restraint Use Across Settings

Abstract: Studies have shown significant variability in rates of physical restraint use across clinical settings. It is unclear if there are racial or socioeconomic disparities in restraint use across settings. The current study examined the sociodemographic variations in restraint use within emergency and inpatient settings. The findings showed that the role of sociodemographic factors varied between settings, while clinical factors associated with changes in mental status were associated with restraint use across settings.

Keywords: Physical Restraints, Alcohol Use Disorder, Clinical Settings

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Title: Dehumanizing and humanizing patients and colleagues: the effects among health care providers responding to the COVID-19 pandemic

Abstract: Health care providers (HCPs) may dehumanize their patients as a means of navigating the complex emotional demands of caring for sick and dying patients, permitting greater focus on the clinical versus interpersonal aspects of health care and avoid burnout. The literature is mixed on the outcomes of dehumanization. Among HCPs responding to COVID-19 in Italy, dehumanization was associated with decreased self-efficacy and increased burnout. Humanization was positively associated with self-efficacy and negatively associated with burnout.

Keywords: COVID-19, Dehumanization, Burnout, Healthcare workers

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Title: Discrimination, Acculturative Stress, and Academic Achievement in Emerging Adults

Abstract: Researchers report an association of racial discrimination to academic achievement for racial/ethnic minority students. Racial discrimination is manifest on multiple levels, including interpersonal discrimination, discrimination in schools, and societal and cultural discrimination. Researchers have generally focused their efforts on examining the effects of one type of discrimination on academic achievement. Further, mediators of this relation have not been fully explored. In a sample of 78 college students, we found only interpersonal racial/ethnic discrimination, and not school-based or societal discrimination was negatively associated with GPA. However, the effects did not hold once controlling for demographic factors. We examined two potential mediators of the relations of interpersonal discrimination to GPA: acculturative stress and academic self-efficacy. Interpersonal discrimination was positively associated with acculturative stress but not related to academic self-efficacy. Societal discrimination was associated with academic self-efficacy. However, neither acculturative stress nor academic self-efficacy mediated the relations of discrimination to GPA.

Keywords: racial discrimination, academic achievement, acculturative stress, academic self-efficacy, GPA

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Title: Evaluating Mechanisms and Moderators of Relations Between Discrimination and Core Executive Functions

Abstract: Our prior work has documented negative associations of discrimination to cognitive flexibility and working memory. The current study aims to examine the role of age and depression in these relations. We found associations of discrimination to core executive functions only for older participants (>22 years). Depressive symptoms did not mediate the association of discrimination to either outcome. Results suggest cognitive effects of discrimination may vary by age and cannot be fully explained by depression.

Keywords: Discrimination, Core Executive Functions, Depression

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Title: Evaluating Strategies for Disseminating Information About the Mental Health Effects of Discrimination - Part 2

Abstract: Discrimination has been consistently linked to depression. Despite evidence suggesting that minority group members want to talk about discrimination-related stress, research suggests that therapists are not engaging in these conversations. There are limited psychoeducational materials available to support these conversations, and there are limited data on their effects. We provide preliminary qualitative data on the interpretation and accessibility of a new psychoeducational booklet, based on social cognitive models of the relations of discrimination to depression.

Keywords: Psychoeducation, Discrimination, Mental health, Depression

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Poster Number: 33

Title: Evaluation of Adoption Rates and Potential Disparities in Direct Oral Anticoagulant Therapy in Patients with Pulmonary Embolism Over Time

Abstract: Over the last decade, recommended treatment for pulmonary embolism (PE) has shifted away from Warfarin, an affordable but difficult-to-manage medication, to Direct Oral Anticoagulants Agents (DOACs), medications that are easier to manage but costlier. Prior literature has revealed racial and economic disparities in DOAC usage among patients with thromboembolic conditions. Among 342 patients with PE in a hospital in Queens, NY, analyses revealed an increase in DOAC therapy over time but no disparities in treatment.

Keywords: health care disparities, pulmonary embolism, DOAC

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Poster Number: 34

Title: Factor Analysis of a Social Determinants of Health Screening Tool

Abstract: COVID-19-related health disparities may be due to social determinants of health (SDoH). Though the SDoH screening tools have been employed in hospital settings, more limited research has evaluated the measurement structure for these assessments in community settings. Across two studies, exploratory and confirmatory factor analyses revealed that items from the Accountable Health Communities (AHC) Health-Related Social Needs (HRSN) screening tool represent a three-factor structure representing Economic Insecurity, Substance Use, and Interpersonal Threat.

Keywords: COVID-19, Social determinants of health, Health disparities

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Poster Number: 35

Title: Moral Injury Events and Healthcare Provider Well-Being During COVID-19

Abstract: COVID-19 presented health care providers with multiple sources of work stress including higher caseloads and exposure to moral injury given limited resources to care for patients. This study evaluates differences in the psychological consequences of these two stressors. Moral injury events predicted burnout, depression, and PTSD symptoms above and beyond workload increases. Relations between moral injury and burnout, depression, and PTSD symptoms were mediated by alienation.

Keywords: COVID-19, Moral injury, Healthcare

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Poster Number: 36

Title: Social Context, Emotion, and Patterns of Eating Within an Urban Sample of American Indians and Alaska Natives

Abstract: Previous research has found mixed relations between socialization, emotion, and patterns of consumption. In the current study, we examined these relations within a sample of American Indian and Alaska Native participants, an understudied group, using ecological momentary assessment. When controlling for average levels of socialization and emotions, state-level positive emotion being with family/friends, and being married were uniquely associated with differences in the rates of consumption of meals, snacks, and fruit/vegetables.

Keywords: Eating Behavior, Health Disparities, American Indian/Alaska Native

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Title: Subtypes of Alcohol Use Disorder Patients and Medical Service Utilization

Abstract: Alcohol use disorders (AUDs) encompass a heterogeneous group of disorders associated with high healthcare service utilization (HSU). Latent class analysis identified subgroups of AUD patients varying in sociodemographic, clinical, and treatment characteristics. Subgroups with primary AUD diagnoses and fewer acute medical needs were more likely to be readmitted within 30 days and present at readmission with AUD diagnoses, and less likely to receive AUD-related treatments. These findings have implications for resource allocation for AUD patients.

Keywords: Alcohol use disorder, Medical service utilization, Readmission

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Poster Number: 38

Title: Examining the Factors Behind Social Workers' Thoughts and Feelings Regarding Their Work at the Child Protective System of Romania

Abstract: Social work is a helping profession that is designed to provide institutionalized support to people as they try to function the best they can in their environment. The clients are often victims of trauma, violence, oppression, or discrimination. Social workers are often involved in extremely complex situations where they have to undertake a variety of roles. Consequently, they need to always be ready to assist vulnerable populations and address their needs appropriately. The purpose of this research study is to examine the correlations between the professional quality of life and self-care activities of social workers at the Child Protective System of Romania. The study will assess the positive (Compassion Satisfaction) and negative (Compassion Fatigue) aspects of helping those who experience trauma and suffering. Additionally, it will focus on the self-care activities of the people who come into daily contact with the children and their families. The well-being of the social workers is crucial to providing quality care and services for the children and families. Even though these helping professionals are the closest to the children, there have been very few studies on how to best support them in Romania. The valuable experiences of this understudied population will help the researcher understand the protective factors that impact social workers' professional quality of life and overall well-being. Only a professional with good self-care can be sufficiently prepared to work with the children. I will recruit Hungarian-speaking social workers working in the Romanian Child Protective System.

Keywords: social workers, professional quality of life, self-care, Romania, child protective system

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Poster Number: 39

Title: A Collateral Effect of Psychotherapy as an Improvement of Overall Quality of Life

Abstract: Looking at the effects of psychotherapy and age as predictors of quality of life throughout the duration of therapy. There appears to be a positive correlation between time in therapy and reports of an increased quality of life.

Keywords: clinical psychology, quality of life, adults

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Poster Number: 40

Title: Children in Psychotherapy with Externalizing Symptoms have more Involved Parents than Children with Internalizing Symptoms

Abstract: I studied the effect of parental involvement on children at the beginning of psychotherapy. Using the parent reports of the YOQ and BILY scales, there was a differential relationship found between internalizing and externalizing symptoms. There was more parental involvement with children who exhibited more externalizing symptoms.

Keywords: Psychotherapy Outcomes, Parental Involvement, Internalizing and Externalizing Symptoms

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Poster Number: 41

Title: Differences between biological and adopted children on anxiety and withdrawal

Abstract: Children who grow up in the foster care system experience numerous long-lasting mental health and behavioral problems. They face a number of adverse childhood experiences such as abuse, neglect and unstable living arrangements. This poster highlights the differences between children who are raised by biological parents and the ones who grow up in foster care homes or with adoptive parents. I am going to look specifically at the discrepancies in anxiety and withdrawal symptoms between these two populations. We need effective strategies to support these adopted children. Knowing more about the types of anxiety symptoms they might experience could help healthcare professionals, social workers and parents find better ways of supporting children in the foster care system. Furthermore, this could help identify possible anxiety and withdrawal problems early, so support and treatment can be arranged. Highlighting the differences between the mental health struggles of biological and adopted children can also help us specialize treatment better so that it directly addresses the clients needs.

Keywords: anxiety, withdrawal, adopted children, biological children

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Poster Number: 42

Title: Effectiveness of Positive and Negative Emotions on Depressed Adults

Abstract: There is significant evidence that negative emotion increases the symptoms of depression, showing a positive correlation, whereas positive emotions decrease the symptoms showing a negative correlation. Negative emotions include anger, sadness, fear, guilt, and jealousy. Positive emotions include happiness, hope, amusement, pride, and serenity.

Keywords: Adult studies,

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Poster Number: 43

Title: Impact of Psychotherapy on Parents' Characteristics and Attitudes

Abstract: Longitudinal research about child psychotherapy has been conducted at the St. Johns Center for Psychological Services. The aim of this study is to determine whether having a child attend psychotherapy influences parents attitudes such as their levels of hope. The literature supports the concept that hope aids individuals undergoing psychotherapy because it enables them to pursue short-term and long-term goals with a protective hopeful attitude. Additionally, hope has been shown to contribute to engagement in psychotherapy and perseverance in achieving goals (Weiss & Ash, 2009). Analyses of the longitudinal data from the BIL-Y Biweekly version through JASP were utilized to examine whether there are changes in parents attitudes towards their children attending psychotherapy over time. On average there is no change in hope, but there may be changes from parent to parent on an individual level. There is no change in hope on average, but there are changes in how psychotherapy is impacting parents hope from parent to parent. The analyses revealed there is a small suggestion that age of child might be a reason why parents hope changes through psychotherapy. Although one would hope that parents would become more hopeful about their child's improvement over time, these analyses do not support this notion. this notion.

Keywords: parental hope, psychotherapy, longitudinal change, perception, attitudes

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Poster Number: 44

Title: Investigation Into the Discrepancies Between Parent and Child Reported Surveys in Assessment of Symptoms and Behavior

Abstract: The aim of the present study is to analyze the discrepancies between parent reported surveys and child reported surveys during assessment in answers from data provided by the Youth Outcome Questionnaire (YOQ). Using the scores from the surveys, cross examination will be conducted with answers from both reports to target the nature of the discrepancies in answers, which could vary from severity of symptoms to parental involvement reported in the questionnaire.

Keywords: Clinical Psychology, Adolescent Studies, Mental Health Research

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Poster Number: 45

Title: Parenting consistency increases over course of child's psychotherapy

Abstract: My research presentation was on the consistency in parental involvement and disciplinary consistency during the child's time in psychotherapy. I used JASP to help run analyses for my findings.

Keywords: creative, child studies, psychotherapy

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Poster Number: 46

Title: Patients Undergoing Psychotherapy Show Increases in Motivation and Working Alliance

Abstract: Often times psychotherapy is acts as a gateway into helping patients create change in their daily lives. For the motivation aspect, it can start off as a motivation towards making therapeutic changes or even motivated to go to their therapy sessions. From that advancement, they can slowly progress to being motivated to do daily tasks that they may have been slacking on or unable to do due to the previous mental state that they were in. The goal of psychotherapy isn't to create a good alliance with the therapist or have more motivation to go to therapy it is looked at as a mechanism to reach the goal of self-improvement for a better way of life. Working alliance and motivation are important mechanisms that lead to change.

Keywords: motivation, therapy, psychotherapy, working alliance

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Poster Number: 47

Title: Relationship of the Big Five Personality Characteristics to Levels of Distress in Patients Beginning Psychotherapy

Abstract: This study was designed to test the correlation between the Big Five Personality traits and levels of distress in patients at the start of psychotherapy. The sample consisted of 6,186 individuals aged 16 to 73 who are patients at the St. John's Center for Psychological Services. Using the BII-BIL-Y, the big five personality traits were assessed: extraversion, agreeableness, conscientiousness, emotional stability and openness. Three types of distress, interpersonal relations, social role, and symptom distress were also assessed using the OQ-45. Results showed that the most significant correlations occurred between emotional stability and symptom distress, extraversion and social role distress, and agreeableness and interpersonal relationships.

Keywords: big five personality, symptom distress, social role distress, interpersonal distress

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Poster Number: 48

Title: The impact of Culture, Language, and Income on Psychotherapy Outcomes

Abstract: Although psychotherapy generally has positive effects, not all patients show improvement, or even improve at the same rate. Some factors that may contribute to differences in response to psychotherapy are demographic factors such as culture, language, and income. Using data from the adult clients at the St. Johns Center for Psychological Services, we found evidence that these external factors do impact patients' responses to psychotherapy. These results highlight the importance of attending to clients' backgrounds while administering care, and how these demographics impact psychotherapy outcomes. Thus, the continued development of cultural and linguistic competence and awareness in clinicians is warranted.

Keywords: psychotherapy outcomes, culture, language, income

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Poster Number: 49

Title: Effects of Disasters on Values and Decisions: Judgment in the Time of COVID

Abstract: Vstfjll et al. (2014) found that invoking the memory of disasters affects peoples value-judgements and propensity for risk-taking behaviors. Here we test if such changes in judgements are also seen when invoking an ongoing disaster: the COVID-19 pandemic. Results from 327 participants randomly assigned to Covid-invocation and Control conditions collected 11/2020-10/2021 find no differences in judgments. We will continue data collection to learn if differences emerge as the crisis is resolved.

Keywords: Values, Judgement, COVID-19

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Poster Number: 50

Title: The Relationship Between Sleep and Anger

Abstract: This correlational study analyzed the relationship between quality of sleep and anger among 52 college students. There were two measures used for each variable, sleep and anger. The results of the study showed a moderate positive correlation that students who reported sleep problems also expressed anger. These findings are to fill the gaps of knowledge in this field because there is lacking research on the theory between sleep and anger.

Keywords: Sleep, Anger, Psychology

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Poster Number: 51

Title: Medical Racism's Effect on the Maternal Mortality Rate for Black Women in America

Abstract: Black women are four times more likely to experience pregnancy-related death than white women. These devastating statistics are due to the influence of medical racism and the inability to shift medical practices to fit the cultural needs of their patients. Often times Black women will exhibit red flags that will be ignored by doctors, resulting in a fatality. An example of this is Shalon Irving. Irving herself was an epidemiologist that worked for the Center for Disease control and research health disparities. Irving reportedly passed away three weeks after giving birth to her daughter after exhibiting many red flags. These warning signs included high blood pressure, severe swelling in her legs, headaches, and swelling at her C-section incision. The story of Shalon Irving is important because, despite her high education in social safety and health, she was not exempt from the fate that many Black women face when trying to expand their families. In a 2016 survey, white medical students were surveyed about

their beliefs on Black patients. The survey found that the students believed that Black people had everything from less sensitive skin to thicker nerve endings. Angela Davis once said: Black women have had to develop a larger vision of our society than perhaps any other group. They have had to understand white men, white women, and Black men. And they have had to understand themselves. When Black women win victories, it is a boost for virtually every segment of society. (Suliman 2021). It is not enough for Black women to prep themselves for the inevitable racism that we are doomed to face. The trauma from American society has permanently changed the DNA of Black Americans and made us more susceptible to have underlying health conditions. It is time for the systems of America to adapt to and accommodate for the demographics of people that we have in our society. In this thesis, I will analyze medical racism in America's effects on Black maternal mortality rates through telling the story of medical and scientific development in the United States, and the dehumanization of the Black female body.

Keywords: Health disparities, Africana studies, Development

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Poster Number: 52

Title: Sexual Health in Latina Immigrants

Abstract: Sexual health is one of the most important issues in the life of the human being and is one of those that receive the least attention or are given the least importance. Sexual health is experienced in both women and men throughout their lives and therefore it is of great relevance that these topics are taught even from an early age to promote a healthy sexual life. Sexual health usually has a negative connotation attached to its definition since most people mistakenly define it as the act of intercourse between two individuals. However, sexual health goes way beyond sexual intercourse, The World Health Organization defines sexual health as a state of physical, emotional, mental and social well-being in relation to sexuality. This term not only refers to sexually transmitted diseases, but it also includes personal care of our private parts, our mental care to feel good about ourselves, respectful approach to sexuality and sexual relationships (CDC, 2019) and the preventive steps to avoid contracting a possible sexually transmitted disease. The community of Latina immigrants is one of the most seriously affected by the lack of resources, lack of access to the health system, lack of education and lower quality living conditions. Since the Hispanic population was determined to be the fastest-growing minority group in the United States, many organizations have used their resources to carry out research that would expand our knowledge about the Hispanic population in different aspects. Despite the multiple social injustices, health disparities among Hispanic immigrants have had a significant impact on their poor quality of life as they are constantly mistreated and misdiagnosed due to differences in risk factors and manifestations of the disease. Vulnerable populations, including the Hispanic community, are often left out in scientific research data as medicine has struggled to include enough women and minorities in research, a problem that leads to the perpetuation of other issues within the Hispanic community.

Keywords: Disparities, Inequality, Healthcare

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Poster Number: 53

Title: What Thoughts Predict Anger in a Prison Sample?

Abstract: Attempts to treat anger are important, and CBT has emerged as the most effective intervention. Little consensus exists about which cognitive constructs to target in treatment. Insight into the specific cognitive constructs that most strongly relate to disturbed anger may guide the development of more effective treatments. The Anger Cognitions Scale (ACS) assesses the Cognitive-Behavioral cognitions of misattributions for hostile intent, overgeneralization, inflammatory labeling, demandingness, and catastrophizing. Wydo & Martin developed a version of this scale for use with prison inmates and found that the subscales measuring its cognitive constructs predicted anger in this population. This study explored a prison version of the Anger Cognitions Scale-Revised (ACS-R). ACS-R-Prison Version shows prisoners responded to anger-provoking events that happen in prisons and examined its relationship with dysfunctional anger measures. The cognitive construct measured in the ACS-R included: hostile attribution (HA); negative consequences of anger (NCA); inflammatory labeling (IL); demandingness (DE); frustration intolerance (FI); awfulizing (AWF); overgeneralization (OG). Confirmatory analyses tested the ACS-R factor structure in an adult sample. 71 unidentified adult male Federal Prisoners completed the ACS-R Prison Form and a measure of dysfunctional anger. No other demographics were gathered because the prison prohibited the collection of such information. Multiple regression analyses were conducted to examine the relationship between the ADS-SF total score and its 3 subscales [reactive anger (RA) anger vengeance (AV), and Anger-In] with the seven anger-related beliefs.

Keywords: Anger, CBT, Prison

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Title: Does self-acceptance mediate the relationship between code of honor and anger in a prison sample?

Abstract: Cognitive Behavioral Therapy is considered the gold standard in treating disturbed anger. Yet, many clients do not improve. Insight into the specific cognitive constructs that are most strongly related to disturbed anger could guide the development of more effective treatments. One such construct is The Code of Honor (CoH). The CoH is never targeted in CBT despite evidence that it is highly related to anger and aggression. Research shows the CoH predicts aggression better than other clinical constructs targeted in CBT. The CoH is a set of attitudes about ones reputation. Behavior that upholds the CoH includes aggression used to maintain and achieve personal status and reputation within groups. CoHs influence on anger and aggression has not been well studied in a prison sample and there are no CBT manuals that target this in treatment. Research shows that high self-esteem serves as a protective factor in the relationship between CoH and disturbed anger. However, this only produced a small effect. We predict self-acceptance will serve as a stronger protective factor in reducing the effect of CoH on disturbed anger. We predict CoH will more strongly correlate with anger vengeance than other anger subscales. 71 unidentified adult male prisoners completed the CoH, the Anger Disorders Scale Short Form (ADS-SF), and a self-acceptance scale. The ADS-SF consists of three factors: Anger-In, reactive anger, and vengeance. Our results suggest that increasing a clients self-acceptance, rather than their self-esteem, could counter the negative influence of CoH beliefs.

Keywords: Anger; Code of Honor; CBT; Self-Acceptance; Prison Sample

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Poster Number: 55

Title: The Development and Validation of the Code of Honor Scale

Abstract: Cognitive Behavior Therapy (CBT) has the most empirical support as a treatment for anger and aggression. Yet, we still need to improve the effectiveness of our treatments. CBT may not be as effective with anger and aggression because we have not adequately identified the cognitive processes and attitudes that trigger anger and aggression. Little agreement exists about which cognitions to target in CBT. The Code of Honor (CoH) is never targeted in CBT despite research showing it correlates highly with anger and aggression. Research shows that the CoH predicts aggression better than other clinical constructs targeted in CBT. CoH reflects the belief that a person must attack others who might pose a threat to their honor or reputation so that they present a fearsome image that keeps others from attacking them. CoHs influence on anger and aggression has not been well studied in a general adult sample. We developed and tested a CoH scale for a general adult population that could demonstrate the significance of CoH and encourage its use in CBT for anger and aggression. We selected items that best reflected the concept of CoH and did not represent other CBT constructs. 223 adults completed the CoH scale and other measures of dysfunctional anger and anger outcomes via an online administration. Our results validated the psychometric properties of the CoH scale. It has excellent reliability and a unifactorial structure. We recommend that future treatments for anger target CoH along with other cognitive constructs.

Keywords: Anger; Code of Honor; CBT

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Poster Number: 56

Title: Radioactive and Nonradioactive Emission Switching in Chlorophyll: Implications and Applications

Abstract: In sodium copper, chlorophyllin and natural chlorophyll- one or both radiative/non-radiative lifetimes- is found to be solvent permittivity dependent, where the amount of scattered light significantly increases in low permittivity solvents. This has implications related to evolutionary design wherein chlorophyll is more likely to scatter and emit light when in a low permittivity environment as is the case when near or embedded-in a membrane. Conversely, these molecules are more likely to absorb photon energy when in an aqueous environment such as the photosynthesis center. In-turn, this switching property can be applied to the design of solar cells wherein molecules positioned near an appropriately engineered interface absorb and transfer charge, while those elsewhere in the device emit and scatter light that may ultimately be absorbed and utilized by a near interface molecule. Trial solar cells exploring this principle have been prepared and tested. While the power generated is small, the ability to store photo-generated charge is unique and results from a fundamentally irreversible generation process and a non-conductive insulation layer separating the emitter and collector. The results suggest that better molecular choices and more carefully engineered devices may lead to highly efficient solar cells as well as low-cost high-density battery storage.

Keywords: Chlorophyll, Radioactivity, Solar Energy, Solar Cells, Chlorophyllin, Emission.

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Poster Number: 57

Title: The Prospect of Terrestrial Optical Refrigeration Based on Chlorophyll Anti-Stokes Fluorescence

Abstract: Raman optical refrigeration is difficult: photon capture cross sections are small, the heat generating Stokes shift is more probable than the heat extracting anti-Stokes shift, and spatial uncertainty of scattering must be small since photonic engineering suppressing the heat generating Stokes shift requires localization. Molecular-based Raman scattering addresses all these limitations with Chlorophyll A being particularly interesting due to its anti-Stokes fluorescence. Chlorophyll A and chlorophyllin solvent dependent absorption and scattering were measured. Fortunately, for the refrigeration application the radiant lifetime is shortest in non-polar media, the case where uncertainty increasing solvation shells do not exist. On the other hand, absorption increases with increasingly polar solvation. These results suggest that chlorophyll-based optical refrigeration is possible, and that nature may have evolved and uses both refrigeration and spectral up-conversion.

Keywords: physics, optics, sustainability, spectroscopy, refrigeration, renewable energy

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Poster Number: 58

Title: Does Clay-Based Language Stimulation Improve Language Outcomes?

Abstract: It is well established that early language skills are modifiable with proper instruction (Konishi, et al., 2014). As such, practitioners attempting to follow evidence-based practices have cast a wide net when developing language enrichment programs that will impact later academic success. The current clay-based language stimulation program provides a way to integrate clinical expertise with fun, clay-based activities. The atmosphere in the art classroom setting facilitates improved receptive and expressive communication skills and elicits natural conversation. There are several advantages of clay-based language stimulation that set it apart from other, early language-based stimulation programs. The program integrates left and right brain function, since artistic creativity and language are targeted during the sessions. The lesson plans allow for children to use their imaginations through open-ended materials, which also leads to divergent and creative thinking. The program also provides the opportunity for speech-language pathologists to educate staff and teachers at daycares and preschools about speech and language norms. A pilot study took place at a local daycare in Queens, NY with 14 children, aged 2;0-5;11, from diverse backgrounds. Trained student clinicians performed the intervention. The intervention took place over 8 weeks, once a week for 60 minutes. Pre- and post-test measures (i.e., PPVT-5, EVT-3, SPELT-2, and language samples) were administered one week before and after the intervention. Participants demonstrated improvement in mean length utterance and expressive vocabulary, as evidenced by improvement in scores pre- to post-test. Future directions include a follow-up study with more participants across different daycares.

Keywords: language stimulation, language intervention, vocabulary, MLU, language scaffolding, language development, preschool language

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Poster Number: 59

Title: Mental Health Stigma as a Sociocultural Complex within Panamanian CULTURE

Abstract: The purpose of this study is to examine mental health stigma within the sociocultural context shared by members of the Panamanian population in New York City. Mental health stigma is a complex topic because it manifests itself differently according to the cultural context in which it is experienced. Culture informs individual beliefs, behaviors, and attitudes regarding how a person should live within their immediate household and within society. This social conditioning is accomplished through a variety of means, including the passing down of social norms, traditions, and customs. The purpose of these cultural characteristics is to encourage socially acceptable behaviors while simultaneously discouraging undesirable behaviors in order to maintain group norms. Mental health stigma has been identified as a prevalent feature of the Panamanian community. Panamanian New Yorkers might be discouraged from seeking out mental health services in favor of religion based coping strategies. This study seeks to understand how Panamanian culture contributes to the development and perpetuation of mental health stigma among Panamanians in New York City. In order to study mental health stigma, this research utilizes surveys and interviews with Panamanian New Yorkers over the age of 18 to understand the role of cultural norms in discouraging open discussion about mental health and willingness to access support services.

Keywords: cultural values, mental health stigma, Panamanians

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Poster Number: 60

Title: The Great Debate-Does Antiquity Restoration Hide the Truth?

Abstract: Many artifacts that are viewed today in museums seem as new as the day they were created, which makes the allure of going to see these artifacts so interesting. But there is a long-standing argument and many viewpoints as to whether or not to restore damaged and fragmentary antiquities. Some argue that restoring artifacts is a detriment to the education of the public and the narrative of the objects life story. Others argue that in order to preserve an artifact for the future, it needs to be restored. There is also the perspective that restoration is a means of respect, by restoring the beauty and glory of the past. And, of course, we return to the point that complete objects tend to appeal to the taste and even evoke the awe of modern museumgoers. My research explores these issues of antiquity restoration through the case of statues of the Egyptian Queen Hatshepsut dating to the 1400s BCE that are currently

on display at the Metropolitan Museum of Art. The question is: should ancient artifacts be restored, and to what extent, and how? Since arriving at the museum in the 1920s the sculpture has undergone three major restorations, in the 1930s, 1979, and the 1990s. I will consider published data as well as perspectives from interviews with museum professionals. Through conversations around this Research Day poster, I particularly look forward to learning how the SJU community would like to see the Hatshepsut sculpture displayed.

Keywords: Egypt, Antiquities, Museums

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Poster Number: 61

Title: On the Synthesis of 2',3'-di-O-Methoxyadenosine

Abstract: There are a variety of cellular processes that are regulated by the flow of calcium ions. Cyclic adenosine diphosphate ribose (cADPR) is the second message in the process to signal a release of calcium from within our cells, a process that remains poorly understood. Creating an analog of cADPR allowed for an enhanced and more detailed ¹H NMR investigation.

Keywords: pharmacology, organic synthesis,

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Poster Number: 62**Title:** Synthesis of nicotinamide adenine dinucleotide by phosphorylation and

Abstract: Nicotinamide adenosine dinucleotide (NAD) is an important biological molecule and a precursor to N-1 cyclic adenosine diphosphate ribose (cADPR), a molecule which the mechanism of action and its conformation is of interest. In order to synthesize the necessary analogs of cADPR, NAD and its analogs was synthesized from adenosine monophosphate (AMP) and nicotinamide adenine dinucleotide (NAD) through phosphorylation and nucleophilic catalysis via pyridine. The resulting product was purified using ion exchange chromatography and analyzed using high pressure liquid chromatography and nuclear magnetic resonance spectroscopy.

Keywords: chemistry, organic chemistry, synthesis**Primary Author:**

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Poster Number: 63**Title:** cADPR Analogues: The Effect of 2'- and 3'- Substitution on Conformation

Abstract: Cyclic adenosine diphosphate ribose (cADPR) is a cyclic nucleotide that functions as a critical second messenger. It is produced in response to extracellular signals, ultimately inducing the release of Ca²⁺ ions within the cell. cADPR is an important molecule with immense biological significance. However, its mechanisms of action remain to be elucidated. Throughout our research, we spent time synthesizing various cADPR analogs and analyzing their conformation. We proposed that the conformation of cADPR may be altered by these modifications and that the conformation may play an important role in the biological interactions necessary to provoke calcium release in the cell. Overall, the purpose of this research is to synthesize various analogs of cADPR, and to analyze their conformations in order to gain a better understanding of how the preferred conformation may impact cADPRs mechanism of action. We have been investigating both the 2 and 3 methoxy analogs, as well as a new analog; the 2, 3 dimethoxy analog. In our conformational analysis of the 2 and 3 methoxy analogs, it was seen that the 3 methoxy analog had a significant conformational change in the backbone of the cADPR molecule, supporting the hypothesis that the conformational change in the molecule due to the presence of the 3 methoxy group is why this analog is an antagonist. Therefore, data on the antagonistic and agonistic activity of these analogs, as well as the laboratory techniques used to analyze them will be presented.

Keywords: organic chemistry research, synthesis, analytical methods**Primary Author:**

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Poster Number: 64

Title: Implications for Adjustment for Narcissistic Youth when Self and Peers' Views in Valued Domains Converge

Abstract: In this study, we tested adjustment correlates (aggression, loneliness, and self-esteem) that may arise because of discrepancies in views held by the self-vs. others and whether such correlates are magnified (or minimized) for narcissistic children. Participants included 444 (228 boys) Finnish students in grades 5 and 8. Peer-reported aggression and self-reported loneliness, or self-esteem served as the dependent variable in a series of regression analyses. In each regression, we tested the two-way interactions between a valued self- and peer-reported domain (i.e., attractiveness, intelligence, popularity) and whether this might be further qualified by narcissism (i.e., the 3-way interaction). Of the nine possible two-way interactions, three were significant (2 marginally), and all involved the prediction of loneliness. Simple slopes analyses indicated that, in all cases, perceptions of valued domains were more strongly connected to loneliness when peers viewed the child as lacking in those domains. Convergence in valued domains appeared to be more important for narcissistic youth as indicated by three significant three-way interactions ($p < .05$). Self-perceived popularity was most strongly connected to narcissistic youths self-esteem (and aggression) when peers also viewed them as popular. None of the simple slopes were significant for the third interaction (narcissism x perceived attractiveness x peer-reported attractiveness predicting aggression). Discussion focuses on the putative mechanisms responsible for narcissistic youths greater reactions (in the form of stronger links to adjustment) to confirmations from the peer group in valued domains.

Keywords: narcissism, adjustment, adolescence, valued domains

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Poster Number: 65

Title: Narcissism Relates to Aggression and Anger Responses to Gender Violations in Different Ways Depending on Popularity

Abstract: Narcissistic youth are often high in social status and are sometimes aggressive towards others that fail to admire their own greatness. In this study, we expect that narcissistic youth are more or less likely to be aggressive and to get angry in response to violations of gender norms depending on their relations with peers. Participants included 195 students (101 boys) in grades four to seven from a southeastern U.S. middle school. Narcissism, Self-efficacy for popularity, and Anger toward self and others in response to gender violations were assessed with self-reports whereas aggression and popularity were assessed with peer-reports. Hierarchical regressions were conducted with either aggression or the two dimensions of anger serving as the dependent variable. In each analysis, grade and gender were covariates. Main effects were added on the next step (narcissism and one index of popularity), followed by interactions between narcissism and popularity. Three of the six interactions were significant and involved one of each of the outcomes. Follow-up analyses indicated that narcissistic youth were significantly more aggressive only when they had high self-efficacy for popularity ($p = .01$). In contrast, the relation between narcissism and anger toward self (and others) for violating gender norms was strongest when peer-reported popularity was low ($b = .46$, $p = .002$ and $b = .70$, $p < .001$, respectively), and unrelated to anger when popularity was low. Discussion focuses on the putative mechanisms that may be responsible for the diverging outcomes (aggression vs. anger) for those high vs. low in status.

Keywords: Narcissism, Gender Violation Anger, Aggression, Popularity

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Poster Number: 66

Title: Narcissistic Youth are More Likely to be Angry when they are Low in Social Status

Abstract: Since anger is a strong motivator of aggressive behavior, it is important to understand the conditions and processes that lead to such anger. In this study, we test the hypothesis that social standing alters the degree to which narcissistic youth experience anger. Participants included 195 students (101 boys) in grades four to seven from a southeastern U.S. middle school. Narcissism and two dimensions of anger (avoidant and preoccupied) were self-reported by the students. Popularity was self- and peer-reported. We conducted a series of hierarchical regressions with narcissism as our focal predictor, with one of the two dimensions of anger taking a turn as our dependent variable, and self- and peer-nominated popularity as our moderator. Grade and gender were entered as covariates. Two of the possible four interactions were significant; self-efficacy for popularity significantly qualified the relation between narcissism and preoccupied anger ($R^2 = 2.9\%$, $p = .01$), and peer-nominated popularity qualified the relation between narcissism and avoidant anger ($R^2 = 2.1\%$, $p = .04$). The pattern of these interactions indicated that narcissistic youth were most likely to experience anger when they were low in social status (low self-efficacy for popularity $b = 1.12$, $p < .001$; low peer-reported popularity $b = .64$, $p < .001$). In contrast, narcissism was weakly or unrelated to anger when status was high. Discussion focuses on narcissistic youths failure to obtain admiration as a driver of their anger and possible aggressive responding.

Keywords: Psychology, youth studies, aggression

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Poster Number: 67**Title:** Mapping N-linked Glycosylation Sites in Tick Antigens

Abstract: The objective of this research was to map N-linked glycosylation sites of four homologous tick proteins. N-linked glycosylated proteins are modified by the post-translational addition of glycans to certain asparagine (N) residues. These glycans are prominent features of the host-facing surfaces of many disease-relevant proteins including the viral spike protein of SARS-CoV-2 and envelope protein of HIV-1. Antibodies primed to attack epitopes on the surfaces of these pathogens must therefore negotiate a thicket of sugars in order to successfully bind. Here, the recombinant anti-tick antigen Bm86, which is expressed on the outside of tick gut cells, and has been used as a successful anti-tick vaccine antigen, was examined, as was another highly homologous protein from a related cattle tick, Ba86. These proteins were compared to more distantly related homologs, Is86-1 and Is86-2, from the tick *Ixodes scapularis*, which is a human vector for Lyme and other diseases. We determined the N-linked glycosylation sites of Bm86, Ba86, Is86-1, and Is86-2 through enzymatic reactions followed by mass spectrometric analysis. The data was then compared to computational predictions of the glycosylation sites to create a graphical representation of all four tick proteins. This is significant because ticks are vectors of infectious diseases worldwide, and no human anti-vector vaccine that disrupts transmission of tick-borne diseases, such as Lyme disease, has yet been achieved. Structural analyses including characterization of glycosylation sites of these tick antigen homologs will help with the development of effective human anti-tick vaccines.

Keywords: Post-translational modifications, tick vaccines, mass spectrometry**Primary Author:**

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Poster Number: 68**Title:** Development of whole cell biosensors for early detection of Oral Squamous Cell Carcinoma

Abstract: The construction of sensors for early detection of disease biomarkers has enormous potential for the future of immunotherapeutics. With an array of synthetic biology tools, we can assemble whole-cell biosensors (WCB) that utilize the innate ligand messenger cascades that cells undergo in-vivo. In short, if one can identify a disease biomarker and its specific binding domain, they can construct a biosensor that promotes the transcription of an observable effector upon said binding. We have set out to build the framework for this promising biotechnology and are working with hallmarks of oral squamous cell carcinoma, a cancer that accounts for 80% of all malignant neoplasms of the oral cavity. Two main salivary biomarkers are consistent with the early detection of OSCC - Neu5Ac and L-Pip. Our current focus is with Neu5Ac and its specific binding to two ligand binding domains (LBD) known as SatA and SiaP. To construct the signal processing unit for this WCB, we created a novel transcription factor called a chimera. This is a fusion of our LBD with our DNA binding domain, LacI- a regulatory transcription factor that confers strong binding affinity to our LBD. An expression plasmid takes up this insert, and a reporter plasmid validates the binding of our disease biomarker to our chimera. Our current research involves the assembly of the chimera and subsequent validation of its binding affinity using expression levels of visible GFP transcribed by our reporter plasmid. This technology promises enormous gains in the early detection and treatment of malignant pathologies.

Keywords: biosensor, cancer, chimera**Primary Author:**

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Poster Number: 69

Title: The Construction of a Novel Synthetic Temperature Dependent Biocontainment System

Abstract: RNA thermometers are temperature sensing, non-coding RNA molecules which regulate genes required during a heat or cold shock response and are found in the 5 untranslated region (UTR) of messenger RNA (mRNA). It is at this location where the thermometer is able to obstruct the ribosome binding site and prevent the translation of mRNA into a protein. The best characterized RNA thermometers possess a secondary structure integrated by a single hairpin-like structure consisting of sixty to one-hundred and ten nucleotides. The intent of our research was to develop a bacterial strain carrying a genetic circuit in which, thanks to a RNA thermometer, the translation of a gene protective against a toxin is enabled at a set temperature of thirty-seven degrees Celsius or superior. However, the engineered bacteria will self-destruct when exposed to a lower temperature (around twenty degrees Celsius). The RNA thermometer identified as a sentinel switch or a kill-switch utilizes a restriction endonuclease (REase) as the toxin (when a bacterium is exposed to a lower temperature) and a methyltransferase (MTase) to counter the toxin at a temperature of thirty-seven degrees Celsius. Additionally, the designed thermometer was also supported by a maintenance module, a safety genetic circuit preventing the accidental triggering of the switch at lower temperatures. The designed sentinel switch may be utilized in the field of biotechnology for the protection of intellectual property (i.e. engineered strains of biotechnological interest) as well as the prevention of the release of potentially lethal bacteria from the laboratory into the outside world.

Keywords: synthetic biology, biocontainment system, RNA thermometer

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Poster Number: 70**Title:** Education, poverty and the role of NGOs in Belo Horizonte

Abstract: This research aims to look into whether educational opportunities created for low-income students by non-profit organizations in the city of Belo Horizonte, state of Minas Gerais, Brazil, help decrease poverty in the communities they serve. The research will include an overview of the history and impact on poverty of different educational programs implemented by Brazil's governments over the years. It will use comparative data of that impact drawn from different countries in order to assess the impact of the education policy of Brazil. After this preliminary part is completed, the research will then focus on its main aim: the analysis and evaluation of the role of INASSIM, a non-governmental organization (NGO), in providing the lacking assistance in the education sector to poor communities and how such work has affected the fight against poverty. The findings of this research may help design an after-school program, or improve a current one, for the sake of providing students with a chance -- and skills -- to come out of poverty and build successful and fulfilling adult lives.

Keywords: Education, after-school programs, government, NGOs**Primary Author:**

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Poster Number: 71**Title:** Novel Exons and Alternative Splicing Events in the Voltage-Gated Calcium Channel CaV1.3

Abstract: Voltage-gated calcium channels play critical roles in regulating neurotransmitter release, hormone secretion, muscle contraction, and other key cellular functions. The L-type voltage-gated calcium channel CaV1.3 is a key mediator of calcium-mediated persistent inward currents in the spinal cord, and has been implicated in the prolonged root reflexes, motor neuron hyperexcitability and spasms that follow spinal cord injury (SCI). Moreover, mutations in CACNA1D, the CaV1.3-encoding gene, lead to autosomal dominant primary aldosteronism with seizures and neurologic abnormalities, and to autosomal recessive sinoatrial node dysfunction and deafness. Inhibition of these channels using CaV1.3-specific channel blockers is thus a potential therapeutic target for alleviating the discomfort caused by SCI-related spasms. This effort, however, is hampered by the lack of a selective Cav1.3 inhibitor and the existence of splice variants with differential drug responses. The tissue expression signature and pharmacological properties of Cav1.3 splice variants in different regions of the central nervous system (CNS), or in specific classes of neurons, are largely unknown. Transcript scanning and cloning from mouse CNS tissues, alongside minigene splicing assays, revealed the existence of novel exons in the N-terminus, C-terminus and in subunit 5 of the third transmembrane domain, alongside multiple competing splice sites. We are investigating the physiological importance of these alternative splicing events and the mechanisms regulating their expression.

Keywords: Voltage gated calcium channels, CaV1.3, alternative splicing, spinal cord injury.**Primary Author:**

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Poster Number: 72

Title: The Impact of Parental Bonding and Family Environment on Personality

Abstract: There has been an explosion of research on the dimensions and hierarchical structure of personality (1). The prevailing consensus is that most of the variability in personality can be described with the Big Five (Emotional Stability, Extraversion, Openness, Agreeableness, and Conscientiousness). Similarly, personality dysfunction can be summarized along the following five dimensions: Negative Affectivity, Detachment, Antagonism, Disinhibition, and Psychoticism (2). However, there is a striking lack of research on the psychosocial and developmental antecedents of personality, such as parental bonding and family environment (1). The purpose of this study is to examine patterns of parental bonding and family environment and their associations with self-reported general personality and personality dysfunction. In terms of parental bonding, we hypothesized that H1) care would be positively associated with the Big Five and negatively associated with personality dysfunction, while the opposite would be observed for overprotection. Further, we hypothesized that H2) positive and negative family environment would be associated with features of adaptive and maladaptive personality, respectively. **Methods:** Undergraduate psychology students (N=274) participated for course credit. They completed the Ten-Item Personality Inventory (TIPI; 3) to assess Emotional Stability, Extraversion, Openness, Agreeableness, and Conscientiousness. The Personality Inventory for DSM-5 Brief Form (PID-5-BF; 4) assessed maladaptive traits: Negative Affectivity, Detachment, Psychoticism, Antagonism, and Disinhibition. Participants also completed the Family Environment Adjective Checklist (FEAL; 5), a measure of positive family environment (PFE), and negative family environment (NFE). Lastly, the brief current form of the Parental Bonding Instrument (PBI-BC; 6) assessed perceived maternal and paternal care and overprotection. Exploratory hierarchical multiple linear regressions examined the amount of variance in personality attributable to parental bonding and family environment. Gender was entered at step 1 as a covariate. In predicting TIPI total, father and mother care measures were entered at step 2 and positive family environment was entered at step 3. Father and mother overprotection were entered as predictors of PID-5 total at step 2, with negative family environment at step 3. **Results:** For H1, parental care yielded significant positive correlations with the TIPI total, Extraversion, Emotional Stability, Openness, and Conscientiousness, but not

Agreeableness, for both the mother (rs: .171 .369) and father (rs: .128 .293). Mother overprotection was negatively associated with the above-mentioned significant findings (rs: -.134 - -.308) (all but Agreeableness). Only the TIPI total ($r = -.15$) and Emotional Stability ($r = -.179$) were significantly related to father overprotection. For the maladaptive personality domains, mother (rs: -.147 - -.369) and father (rs: -.21 -.409) care were negatively correlated with all measures (PID-5-BF total, Negative Affect, Detachment, Antagonism, Disinhibition, Psychoticism). The opposite was observed for mother (rs: .159 - .327) and father (rs: .127 - .268) overprotection, which had significant positive associations with dysfunctional personality. In terms of H2, PFE was significantly related to all Big Five dimensions with Pearson's r s ranging from .124 to .324. NFE was only significantly correlated with Extraversion ($r = -0.159$), the TIPI total ($r = -0.263$), and Emotional Stability ($r = -0.342$). All measures of maladaptive personality were significantly associated with PFE (rs: -0.173 -0.376) and NFE (rs: 0.201 0.396). The overall regression predicting general personality was statistically significant ($F(4, 268) = 12.59, p < .001$), however the only significant increase in explained variance was observed at step 2 ($R^2 = .148$) with father and mother care. PFE was not a significant predictor of general personality. The overall regression predicting maladaptive personality was statistically significant ($F(4, 268) = 17.79, p < .001$). Both overprotection and NFE accounted for significant increases in explained variance. Father overprotection was a significant predictor of maladaptive personality at step 2, but became non-significant at step 3 with the addition of NFE. Mother overprotection retained significance at step 3 ($r = .191, p = .002$) as NFE emerged as a significant predictor ($r = .292, p < .001$). Discussion: Findings suggest that parental bonding and family environment play a critical role in the development of adult personality. Parental care was strongly associated with most dimensions of normal personality and negatively associated with all domains of maladaptive personality. This suggests that father and mother care may facilitate the development of normal personality. Maternal overprotection was negatively associated with general personality, indicating that controlling mothers may inhibit healthy personality development more so than overbearing fathers. Further, having an overly controlling parent may incite maladaptive personality in later adult life. Lack of parental care had a marginally stronger effect than overprotection on personality. Results from H2 confirm strong links between PFE and normal personality as well as NFE and maladaptive personality. As such, a PFE may foster the development of healthy personality, while buffering against maladaptive personality. Further personality dysfunction may be a consequence of NFE. Exploratory regression analyses confirmed these findings, such that negative influences of parental overcontrol and family environment predicted personality dysfunction while the positive influence of parental care predicted healthy personality. Our results insinuate that parental care and family environment may be critical psychosocial antecedents to personality development.

Keywords: Psychology, parental bonding, personality

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Poster Number: 73**Title:** Removal of Nonylphenol with Fungi

Abstract: In our proposed research, we aim to study the effect oyster fungi, specifically blue and golden oyster mushrooms, have on nonylphenol concentrations in solution. These compounds come from the natural decomposition of alkylphenol ethoxylates. Alkylphenol ethoxylates originate from common household supplies such as soaps and detergents, but do not pose a threat to humans as they are not toxic. On the other hand, their decomposed form, alkylphenols, can be highly toxic due to their ability to mimic hormones such as estrogen, disrupting endocrine systems in humans and marine life. Endocrine disruptors result in poor biological function in humans and fish since the endocrine system is responsible for coordinating normal functioning of cells. Humans may be exposed to alkylphenols if we consume fish that have ingested these chemicals from their aqueous environment, and through biomagnification, by the time the alkylphenols reach us, they may be highly concentrated and much more toxic. Based on past research done by experts, we hope to see how well fungi may be able to remove nonylphenols and how different conditions may influence its effectiveness through our proposed experiment. In our experiment, we aim to see how various nonylphenol concentrations and incubation time lengths may impact the efficiency of oyster mushrooms to remove them. Ultimately, we desire to discover how fungi could be a potential solution to inadequate sewage treatment in order to remove harmful chemicals that pose a threat to marine life and the humans who consume these marine animals or use the water sources.

Keywords: Environmental, Alkylphenols, Chemistry**Primary Author:**

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Poster Number: 74**Title:** Sea Anemones vs. Zinc Pyrithione (ZPT)

Abstract: Zinc Pyrithione is the active ingredient in Head and Shoulders shampoo. There is a high likelihood that ZPT is being introduced into the sewage system and in turn back into the ocean where *Bunodosoma Cavernata*, a long tentacle anemone, can be found. Anemone has a symbiotic relationship with zooxanthellae, an algae. We will be measuring the amount of ZPT that still impacts the sample. There will be three 10-gallon tanks with artificial sea water and a bubbler present. The three tanks will be set up at least 12 hours prior to the introduction of the anemone to allow for the system to become static. The pH level of the system will be maintained at about 7.8 with nitrate and nitrite concentrations at zero. After 24 hours, three identical organisms will be introduced into each tank. A 24 hour acclimation period will then be conducted before the introduction of ZPT. Through calculations, we found that 1% of 10 gallons is 378.5ml. There will be one control tank, a half dose tank, and a tank that will receive this volume. The anemone will then be exposed for 12 hours. Three separate fragments from each organism will be removed following the exposure period. The first fragment will be used for chlorophyll extraction. The second fragment will be placed into ethanol in to undergo graphite furnace atomic absorption to determine the amount of metal present in the sample. The last fragment will be placed into glutaraldehyde and designated for microscopic histology examination.

Keywords: anemone, Zinc Pyrithione, histology**Primary Author:**

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Poster Number: 75

Title: Synthesis, Electronic, and Magnetic Characterization of Metal tris-Acetylacetonate Complexes

Abstract: A series of neutral octahedral metal complexes are formed using acetylacetonate as the ligand and metals in the +3 oxidation state. The magnetism, electronic and vibrational properties of these tris-acetylacetonato-metal(III) complexes, where M = aluminum, cobalt, copper, chromium or iron, were studied. For first row transition metals, these compounds can be either low or high spin. Their magnetism was determined by the Evans and the Guoy methods. This allows comparison of the number of unpaired electrons, whether the compounds are high or low spin, and any trends the effective magnetic moment, μ_{eff} and its comparison to the spin-only magnetic moment, μ_{spin} . The electronic and vibrational structures of the compounds was investigated using UV-vis spectroscopy, infrared spectroscopy, and cyclic voltammetry. This allowed us to determine the types of electronic transitions and the reduction potentials of the metal. Results were used to investigate any periodic trends of the compounds.

Keywords: Chemistry, transition metal complexes, acetylacetonate, inorganic synthesis, UV-vis spectroscopy, ^1H NMR, magnetic susceptibility, cyclic voltammetry, infrared spectroscopy

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Poster Number: 76

Title: The Effects of Material and Color on Rooftop Heat Absorption

Abstract: Urban areas can be considered heat islands, which are often defined as the temperature differential between cities and their surrounding areas. Temperatures can also fluctuate throughout cities, and because of the uneven distribution of heat-absorbing buildings and pavements, some parts are hotter than others, while others remain cooler thanks to trees and vegetation. One significant contributor to the urban heat island effect is the use of inefficient rooftops on buildings that trap high amounts of heat, both directly and indirectly impacting surrounding ecosystems. With this in mind, our goal is to produce various types of concrete by changing color and additives (fiberglass) to determine the best material to decrease rooftop heat absorption. In our experiment, we plan to use six different types of concrete to form miniature structures. Over time the temperatures of the surface, as well as the area below, will be measured. We will need these statistics to determine which type of concrete absorbs less heat itself, as well as which would serve as the best rooftop in terms of cooling the internal structures. Over a period of multiple months, we hope to learn exactly how much changing concrete can impact its heat retention, and to see if we can truly observe visible differences through our structures. We hope to achieve significant conclusions through our results for each experimented piece of concrete, to help us understand the true best methods for producing an assumed rooftop in an urban environment.

Keywords: concrete, urban heat island, temperature, absorbance

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Poster Number: 77

Title: Mental Institutions for the Criminally Insane

Abstract: This research seeks to study the previous conditions of mental institutions of which criminals were sent to upon claiming the insanity defense. Treatments in these facilities have changed drastically since the early 1900s, shifting away from shock therapy and dangerous medications. Today, the insanity defense is rarely claimed in order to avoid being sent mental hospitals. The question is why, and what is happening to them now?

Keywords: insanity defense, shock therapy, medication

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Poster Number: 78

Title: Completely Unrelated Transportation Problems on Finite Metric Spaces

Abstract: In the context of Optimal Transport on finite metric spaces, we define the notion of Completely Unrelated (CU) problems. Informally, problems are completely unrelated if the total cost of any combination of them cannot be reduced by merging their transportation plans. We are interested in maximal collections of such problems (MCU). We start by analyzing the extreme cases; after that we specialize to certain grids, e.g. triangular, rectangular, and hexagonal grids.

Keywords: finite metric space, optimal transport, graph theory, transportation plan, Tolstoi theorem

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Poster Number: 79

Title: The School to Prison Pipeline and Counselor Education: Training Counselors to Disrupt Criminalization in School Discipline

Abstract: Retributive disciplinary policies, along with police presence at schools and zero-tolerance policies, have resulted in exponential rates of the school-to-prison pipeline. In addition to this, racialization during the school disciplinary process has disproportionately impacted BIPOC students. To counter this, existing literature asserts a Critical Race Theory-framed, trauma-informed, and restorative-based approach to discipline as a sustainable solution. Fortunately, a group of individuals specifically trained in implementing such frameworks exists: school counselors. Yet, knowledge of their potential and skills to disrupt the pipeline by bringing these frameworks to the school disciplinary process are not widespread in counselor education. With reforms to multiculturalism and enhancements to advocacy training in counselor education, counselors will be better equipped to assert anti-racist, restorative practices in a schools disciplinary process, obstructing specific instances of the pipeline. This research will conduct an assessment of the counselor education curriculum and its impact on school counselors in training at St. Johns University on topics surrounding the school-to-prison pipeline, anti-racist approaches to school discipline, and student advocacy during the disciplinary process. After receiving results, this research will seek to create a sustainable solution to close any gaps between counselor education and the training that can provide counselors with the knowledge and skills necessary to disrupt instances of student incarceration, so that the next generation of counselors will be ready to take their role as active agents against the pipeline.

Keywords: school to prison pipeline, counselor education, school discipline

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Poster Number: 80

Title: Haitian Occupation, Dominican Independence, and the Formation of Anti-Haitian Sentiment in the Creation of a National Dominican Identity

Abstract: Over a period of 22 years, from 1822 until 1844, the eastern part of the island of Hispaniola, Santo Domingo found itself under Haitian control. During this occupation, President Jean Pierre Boyer instituted radical changes such as the abolition of slavery, benefitting the majority of Santo Domingos mulatto and Black population. However, the Haitian occupation of Santo Domingo came to an end as a result of successful independence efforts spearheaded by criollo elites in the Trinitaria. This research aims at understanding how and why antihaitianismo became synonymous with Dominican nationalism. This research further examines the role of the wealthy elites in propagating and weaponizing anti-Haitian sentiment to attract Dominicans toward joining the independence movement. This study distances itself from vague reasonings for the anti-Haitian sentiment that is rampant in the Dominican Republic, rather looking at the many circumstances that drove criollos to form an independence movement. Extensive research indicates that concepts of Dominican nationalism are crafted around an anti-Haitian ideology propagated by Dominican elites as a means of legitimizing and justifying independence.

Keywords: History, Nationalism, Dominican Republic, racism

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Poster Number: 81**Title:** Functional Modulation of the Cav3.1 Calcium Channel by Alternative Splicing at the C-terminus

Abstract: The CACNA1G gene encodes Cav3.1, the alpha-1G subunit of a low-voltage-activated T-type calcium channel, which plays crucial roles in cardiac and smooth muscle cells and neurons by influencing the transmembrane potentials and regulating intracellular Ca²⁺ signaling. Different splice variants of Cav3.1 have been described, and alternative splicing of Cav3.1 can alter channel kinetics, localization, and cytosolic Ca²⁺ trafficking. Here, we analyze the function of two exons, termed E34 and E35, in the intracellular C-terminus. E34 and E35 are preferentially included in nerve tissue postnatally but mostly skipped in embryonic tissues. To examine the physiological properties of these splice variants, we recorded channel activity by two-electrode voltage clamp and whole cell patch clamp. We discovered that including either or both E34 and E35 in Cav3.1 may facilitate Ca²⁺ influx. To investigate the mechanism of E34 and E35 splicing regulation, we generated minigene reporters and tested them against specific splicing factors that may modulate their inclusion and/or skipping. Our data show that E34 and E35 splicing is regulated by Nova1, Nova2, and Ptp2, which promote exon inclusion in a dose-dependent manner. We also investigated the effects of the Ca²⁺ binding protein calmodulin on the activity of the different channel splice variants; our data show that calmodulin confers current facilitation on E34 and/or E35-including Cav3.1 isoforms and shifts the inactivation curve. Taken together, our data indicate that alternative splicing at E34 and E35 of Cav3.1 may regulate neuron excitability and modulate the intrinsic firing pattern by controlling Ca²⁺ influx through the channel.

Keywords: Cav3.1, CACNA1G, calcium channel, alternative splicing**Primary Author:**

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Poster Number: 82

Title: HIV Tat and the subcellular mislocalization of neuronal splicing factor Rbfox3

Abstract: Alternative splicing (AS) is a strictly regulated post-transcriptional process occurring in the nucleus of eukaryotes. Rbfox3 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 has been implicated in the regulation of adult neurogenesis and synaptogenesis. Rbfox3 itself undergoes AS, producing four isoforms with either nuclear or cytoplasmic subcellular localizations. The retrovirus HIV predominantly attacks the immune system of primates but also affects long-term neurocognitive function. The trans-activator of transcription (Tat) is a broadly neurotoxic regulatory protein released by HIV-positive cells that localizes to the nucleus of host cells to drastically increase transcription levels of the viral genome. Rbfox3 mislocalizes from the nucleus to the cytoplasm in basal ganglia, hippocampal, and occipital lobe neurons of HIV-positive patients, and decreased protein expression has been described in cultured neurons and mice treated with HIV Tat. Little is known about downstream effects of subcellular mislocalization on Rbfox3 function and whether Tat differentially affects Rbfox3 isoforms. This project aims to characterize the subcellular localization of each of the four common isoforms in N2a and HEK293T cell lines prior to and post Tat treatment, as well as two novel isoforms with different splice patterns. As Rbfox3 also regulates splicing of its paralog Rbfox2, it would be interesting to test whether Rbfox3 might autoregulate its splicing.

Keywords: HIV, alternative splicing, gene regulation, gene expression, neurobiology

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Poster Number: 83**Title:** Microfinance & Women: The Road to Sustainable Development

Abstract: Poverty is multifaceted phenomenon that occurs globally. In Pakistan, eighty percent of the poor live in rural areas and a majority of these people are women. The inability of rural Pakistani women to participate in their local economies is due to barriers such as low levels of financial literacy, patriarchal social or cultural norms and limited access to financial institutions. This societal inequality can be combatted through the use of microfinance which is a vital tool in poverty reduction efforts. Through the use of microfinance in rural Pakistan, Pakistan will progress towards the sustainable development goals. This research is conducted to evaluate how the empowerment of women in rural Pakistani villages through microfinance can assist Pakistan in achieving the Sustainable Development Goals (SDGs). It utilizes both quantitative and qualitative data from existing literature. Results of this research found that the integration of microfinance in rural Pakistani villages led to increased economic prosperity which allowed for rural development.

Keywords: Microfinance, Sustainable Development, Rural Pakistan**Primary Author:**

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Poster Number: 84**Title:** PH Domain Movement During Dynamin's Open vs. Closed Conformations

Abstract: Dynamin is the protein responsible for vesicle scission at the end of clathrin-mediated endocytosis. There are a couple of competing mechanisms by which dynamin proteins do this, and there is no clear consensus on which one is correct. The dynamin cross-dimer latches onto the membrane vesicle neck via its PH domains. Better understanding of when the PH domains are able to move may give insight into what triggers dynamin to latch onto cell membrane as well as what leads dynamin to let go. Using normal mode analysis and molecular dynamics simulation data, we found that the PH domains move more freely when dynamin is in its open conformation rather than its closed conformation. In the context of computational chemistry, knowledge of when the PH domains move freely might help us to have simplified explanations for its motion and to make accurate predictions. This is helpful for building a coarse-grained model of dynamin, which the Vzquez Lab is interested in. Coarse-grained models allow for much faster simulation of dynamin protein-protein interactions. This is key in determining the mechanism by which dynamin causes vesicle scission.

Keywords: computational chemistry, endocytosis, dynamin protein

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Title: Ca²⁺ activation mechanism of the heteromeric PKD1L3/PKD2L1 channel based on Cryo-EM structure

Abstract: The heteromeric complex between PKD1L3, a member of the polycystic kidney disease (PKD) protein family, and PKD2L1, also known as TRPP2 or TRPP3, has been a prototype for mechanistic characterization of heterotetrametric TRP-like channels. Here we show that a truncated PKD1L3/PKD2L1 complex with the C-terminal TRP-fold fragment of PKD1L3 retains both Ca²⁺ and acid-induced channel activities, which not only indicates that the TRP-like fragment from C-terminal PKD1L3 still works functionally as full-length PKD1L3, but makes the future studies much easier. The asymmetric heterotetramer, with 3 subunits of PKD2L1 and 1 PKD1L2, has an asymmetric selectivity filter (SF) guarded by Lys2069 from PKD1L3 and Asp523 from the three PKD2L1 subunits. Ca²⁺-entrance to the SF vestibule is accompanied by a swing motion of Lys2069 on PKD1L3, therefore, Lys2069 may play key roles in divalent ion permeation of this channel. Structure-guided mutagenic studies revealed an unprecedented Ca²⁺ binding site in the voltage-sensing domain (VSD) of PKD2L1-III, but not the other three VSDs. In the presence of Ca²⁺, VSDIII undergoes a downward and lateral motion that pushes S4S5III toward S5 and S6 of PKD1L3, suggesting that conformational changes in the VSDIII can be transmitted to the pore domain, which was verified by the abolishment of Ca²⁺-induced current in the according mutants, thereby suggesting a potential mechanism for Ca²⁺-induced channel activation. Together, this model of conformational changes might reveal the gating mechanism of PKD1L3/PKD2L1 complex ion channel and give us a hint on the opening mechanism of other ion channels in its family.

Keywords: ion channel, cryo-EM structure, mechanism exploration

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Poster Number: 86

Title: ML-SA1 , a TRPML1 agonist, activates a gain-of-function polycystin-2 (PC2) mutant

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 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 drugs development.

Keywords: Biology, protein, TRP channel

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Number: 87

Title: Regulation of p53 stability by TRPM6 and TRPM7

Abstract: Previously we identified TRPM7, a zinc-permeable bifunctional ion channel, as a novel MDMX-interacting protein that regulates cellular levels of MDMX in part by modulating the intracellular Zn²⁺ concentration to promote tumorigenesis. Here, we showed that c-terminal kinase domain of TRPM6, a family member of TRPM7, interacts with p53 and targets p53 for phosphorylation. Site-directed mutagenesis was carried out to mutate potential TRPM6 phosphorylation sites on p53. The stability and activity of these p53 mutants were analyzed in comparison to those of wild-type p53 in the absence and presence of TRPM6 and TRPM7 complex. In addition, using H1299 cell lines with MDMX RING domain defective mutant at the endogenous locus, we examined the effect of TRPM6 and TRPM7 overexpression on p53 stability. Our data indicated that phosphorylation of p53 by TRPM6 and TRPM7 regulates its stability.

Keywords: Cancer, p53, Protein Stability

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Poster Number: 88

Title: A Socio-Technical Approach for Biomedical Content Authoring and Publishing

Abstract: Significant barriers remain in achieving fast and precise access to online biomedical content because of the ubiquity of unstructured biomedical information. Given the growing volume of biomedical content on the web, embedding semantic annotations have become key to enhancing search engines context-aware indexing and improving search speeds and retrieval accuracy. We introduce Semantically: a socio-technical framework for semantic enriched biomedical content authoring and publishing. Identifying the appropriate semantic vocabulary for biomedical content annotation is time-consuming and technically challenging. Semantically automates this process for users by recommending highly accurate annotations from a wide range of biomedical ontologies. Furthermore, the framework is equipped with a knowledge-sharing system, allowing biomedical authors to collaborate on identifying more precise annotations during the content authoring process. Similarly, preserving the newly minted content-level semantics during and following publishing to foster semantic search remains a research challenge. Extending Schema.org, a community-agreed and research engine endorsed guideline for publishing structured content on the web, semantically addresses this obstacle. We aim to improve the feedback cycle by creating customized feeds for the knowledge-sharing system and integrating notifications for faster responses in future work. The demo of the system is accessible at: <https://gosemantically.com/>

Keywords: biomedical content authoring, biomedical content publishing, unstructured data, semantic enrichment

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Poster Number: 89

Title: Using Artificial Intelligence in Studying Patterns of Migratory Birds

Abstract: We surveyed several studies in which researchers employ Artificial Intelligence (AI) tools in order to analyze migratory birds statistics. Data on bird types, migration paths, population, frequency of migration, was processed with Machine Learning algorithms. Our interest lies in identifying common AI platforms and software packages used by phenologists, biologists, and environmentalists in order to process large data sets.

Keywords: Artificial Intelligence, migratory birds, data analysis

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Poster Number: 90

Title: The effect inconsistent Tuberculosis (TB) treatment has on the spreading of drug resistant TB

Abstract: Worldwide, tuberculosis (TB) is the 13th leading cause of death and the second leading infectious killer after COVID-19. It is an extremely contagious disease as it is spread via airborne transmission. TB is caused by mycobacterium tuberculosis, a bacteria that in general, attacks the lungs, but can also damage the brain and the spine. If treated properly, tuberculosis is a curable disease. However, if TB patients are inconsistent with their medication, the bacteria can become resilient to treatment resulting in drug resistant TB. This means the drug can no longer kill the TB bacteria. As a result, other people can become infected with this new mutant form of TB, for which treatment options are limited, expensive, often toxic and not always effective, leading to death. In this study, we decided to simulate the effect inconsistent TB treatment has on the spreading of drug resistant TB. We have taken a traditional Susceptible, Infectious, Recovered (SIR) model which shows the effect an infectious disease has on a population and adapted it for our purposes. Our version of the SIR model is an explanatory model that has been expanded to consider seven compartments and six parameters that control their rate of flow to help us determine how inconsistent TB treatment affects the percentage of drug resistant TB cases. Our results show a positive correlation between inconsistent TB treatment and drug resistant TB. Thus, this study provides evidence that completing TB treatment can prevent the spread of drug resistant TB and can save lives.

Keywords: Tuberculosis, Latent TB, TB Disease, Drug Resistant TB

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Poster Number: 91**Title:** Applications and Classifications of Vehicular Clouds

Abstract: Motivated by the success of conventional cloud computing, vehicular clouds were introduced as a group of vehicles whose corporate computing, sensing, communication and physical resources can be coordinated and dynamically allocated to authorized users. In vehicular cloud as opposed to traditional cloud nodes are not available all the time. Random arrival and departure of vehicles create a dynamic environment in terms of resources availability. In this work we studied different types of Vehicular clouds and which ones are best for each situation.

Keywords: Classification, Vehicular cloud computing, Edge Computing

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Poster Number: 92**Title:** Scheduling Algorithms in Vehicular Cloud Computing

Abstract: Motivated by the success of conventional cloud computing, vehicular clouds were introduced as a group of vehicles whose corporate computing, sensing, communication and physical resources can be coordinated and dynamically allocated to authorized users. In vehicular cloud as opposed to traditional cloud nodes are not available all the time. Random arrival and departure of vehicles create a dynamic environment in terms of resources availability. In this work, we study scheduling algorithms and how differences in scheduling order affects the efficiency of computing.

Keywords: Technology, Optimization, Automobiles

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Poster Number: 93

Title: The Impact of Redundancy in Vehicular Cloud Performance

Abstract: Motivated by the success of conventional cloud computing, vehicular clouds were introduced as a group of vehicles whose corporate computing, sensing, communication and physical resources can be coordinated and dynamically allocated to authorized users. In vehicular cloud as opposed to traditional cloud nodes are not available all the time. Random arrival and departure of vehicles create a dynamic environment in terms of resources availability. In this work we study the impact of having multiple cars available for a job, and what effects that has on job performance.

Keywords: Vehicular cloud computing, Performance, Edge computing

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Number: 94

Title: The village women of Mwani and their cultivation of one of the world's biggest seaweed empires

Abstract: This study aimed at identifying climatic factors affecting seaweed (mwani) farming, its impact and socioeconomic strategies by the women seaweed farmers coping with the impacts of climate change. The study was carried out along villages in Paje, Zanzibar and Kwale, Kenya. These villages were chosen due to the high production of seaweed farming. Surveys were conducted to collect qualitative data. Observations and interviews were conducted to collect qualitative information. Considering the hardships Mwani production involves, women conducting seaweed farming were improving their livelihoods and positively impacting their families and community cities. Seaweed farming has been a tool for liberation by empowering women to bring home money for their families without relying on their husbands. Empowerment of women in agri-business activities such as seaweed farming has helped Zanzibar and Kwale improve its economic status and in an environmentally friendly and sustainable way. The entrepreneurship systems resulting from seaweed farming activities help women pay for the development and education of their families in ways such as paying school tuition, buying school uniforms, and books for their children. Paje, a village on the South-Eastern coast of the island is a recently built a Seaweed Center, which provides opportunities for women to improve their healthy condition of living and engage in economic activities that benefit the whole community. Kibuyuni Seaweed Self-Help Group (SHG) in Shimoni, Kwale Country first established in 2010; has provided an opportunity for women to increase production costs and secure socio economic stability. The predictability of a cash income means that women stand a greater chance of a higher income working for a seaweed center than selling their own seaweed.

Keywords: Ethnographic Research, Seaweed Farming, Creative Writing, Climate Change Awareness, Sustainable Livelihoods, Gender Mainstreaming, Outreach & Communications, Traditional Knowledge, Science & Research

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Poster Number: 95

Title: Contracts and Heavyweight Champions

Abstract: The UFC heavyweight champion wishes to pursue free agency within the MMA community. In his contract, there is a "championship clause" which gives the UFC the right to extend him as long as he remains champion.

Keywords: Contract, Championship Clause, UFC

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Poster Number: 96

Title: Electoral College and Legal Cases

Abstract: An overview of the U.S. Electoral College and legal cases associated with it.

Keywords: Government, Electoral College, Law

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Poster Number: 97

Title: Electoral College and Legal Cases

Abstract: Research examining the U.S. Electoral College system and legal cases related to it.

Keywords: Government, Electoral College, Law

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Poster Number: 98

Title: Electric cars and the effects

Abstract: The usage of electric cars and how they affect the environment.

Keywords: environmental research, gas usage, car advancements

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Poster Number: 99

Title: Fashion and the environment

Abstract: The legal issues and court cases of problems in the fashion industry.

Keywords: fashion, ethics, environment

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Poster Number: 100

Title: No Knock Warrants

Abstract: I will be doing this project on "no knock warrants". These are warrants issued by judges and allow law enforcement to enter a property without immediate prior notification of the residents.

Keywords: Legal Research, legal writing, legal studies

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Poster Number: 101

Title: Patents

Abstract: How patents affect the fashion industry

Keywords: Legal Cases, Patents, and Fashion

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Poster Number: 102

Title: Transgender People in Sports

Abstract: A constant argument revolving the transgender community is their involvement in events that are separated by gender. If a trans-female, male to female, chooses to participate in a sports event that is for women, should it be allowed?

Keywords: Transgender, Sports, Research Paper

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Poster Number: 103

Title: Insanity... why is it a legal defense?

Abstract: In this poster I will be giving examples of real life legal cases where defendants have plead the insanity defense. I will be giving the laws in different states in the country as well as illustrations that show how insanity is proven.

Keywords: Law, research, insanity

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Poster Number: 104

Title: Analysis of Racial Disparities Concerning Access to Equitable Education and Promotion of Further Education

Abstract: This study examines the educational, economical, and social development of racial disparities in public versus private education in New York City high schools. Previous research has found on an educational level, entering high-quality schooling is not equally accessible for all groups. Although Black and Hispanic students make up 30% and 40% of total public-school students in New York City, they are given a 5% and 7% acceptance rate (respectively) in comparison to their White counterparts who face a 20% acceptance rate (Tortoriello 2016). There was also evidence that education and economic segregation go together. The existence of private schools is a testament to this. They uphold the theory that you can pay for better education and further success. Schools with lower funding face faster teacher-turnover rates, higher levels of food insecurity, and greater suspension levels. Lack of financial support continues to follow students as they progress through college. Black students exit with significantly more debt than do peers from other racial or ethnic groups (Grinstein-Weiss 2016). Students who face inequality in education are aware of the ethnic and racial disparities that exist in their early childhood education, perpetuating into their perspectives of further education. When children from stigmatized groups become aware of broadly held stereotypes, indirectly activated stereotype threat can significantly hamper cognitive performance in educational settings (McKown 2019). The purpose of this study is to discover the connections between income level, education experience, and race/ethnicity, to determine what discrepancies are being faced by marginalized communities in different forms of education.

Keywords: education, racial disparities, income inequality

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Poster Number: 105

Title: Personalized Outsourced Privacy-Preserving Database Updates for Crowd-Sensed Dynamic Spectrum Access

Abstract: Dynamic Spectrum Access (DSA) paradigm enabled through Cognitive Radio (CR) appliances is extremely well suited to solve the spectrum shortage problem. Crowd-sensing has been effectively used for dynamic spectrum access sensing by leveraging the power of the masses. Specifically in the DSA context, crowd-sensing allows end users to query a DSA database which is updated through crowd-sensing workers. Despite recent research proposals that address the privacy and confidentiality concerns of the querying user and crowd-sensing workers, personalized privacy-preserving database updates through crowd-sensing workers remains an open problem. To this end we propose a personalized privacy-preserving database update scheme for the crowd-sensing model based on lightweight homomorphic encryption. We provide substantial experiments based on real-life mobility data sets which show that the proposed protocol provides realistic efficiency and security.

Keywords: SDR, SDN and NFV as enabling technologies for IoT, Data security and privacy for IoT

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Poster Number: 106

Title: Gluttony, Unity, and Empires: The Political Undertones in The Divine Comedy and their Influence on the Modern Perspective of the Law

Abstract: Dantes Divine Comedy is more than a poetic work. It is a gateway into the perspective of Italian civilization during the Middle Ages. The Divine Comedy discusses the economic, social, and political issues that the (then fragmented) Italy was facing during these times. This work showcases three separate artworks from the sixth canto in each canticle: Inferno, Purgatorio, and Paradiso. The sixth canto in each canticle is considered to be the political cantos of the Divine Comedy which can be compared to our modern perspective of the law and politics.

Keywords: Art, politics, literature

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Poster Number: 107

Title: Examining impact of race as an determiner of successful equitable educational outcomes in public high schools in the Portland-Metro area

Abstract: When looking at studies that attempt to highlight the impact of equity and equality-based policies in the Portland-Metro area, it is evident that there is not enough community-based policy to support the bridging of socio-economic barriers. Moreover, a lack of diverse representation in schools continues to impact minority students, regardless of policies and commitments pledging increased diversity (Curry-Steven). Additionally, there has been little shift in action from the commitment to providing an equitable education in the Portland-Metro area. This study breaks down the systemic injustices that have been allowed to take hold in Portland and surveys historically marginalized communities. With the help of community educators, local students and parents of students were invited to participate in the survey. The goal of the survey is to provide a community-based response and create a space in which community members and educators can constructively support each other. The expected results are possible solutions that would assist the largest amount of community members, based on the recorded data. Furthermore, this study is aimed at assessing the overall impact that equity and equality-based policy changes assist marginalized communities.

Keywords: education policy, community-based research, equity

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Poster Number: 108

Title: How Does Access to Information About Corporate Ethics Affect St. John's Students' Understanding of the Opioid Epidemic?

Abstract: This study focuses on the opioid epidemic and the role of pharmaceutical companies in perpetuating this crisis. It assesses whether students at St. John's University hold these companies or physicians accountable and whether they believe corporate ethics played a hand in this national and global emergency. It also seeks to understand the students' view of the victims -- whether they are fully at fault or whether they fell victim to the disease of addiction.

Keywords: Business Ethics, Opioid Epidemic, Pharmaceutical

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Poster Number: 109

Title: Reach Out NYC: How can nonprofits best connect with New York City's most vulnerable residents?

Abstract: The objective of this research is to establish patterns of outreach in nonprofit organizations that aim to meet the needs of individuals living without shelter. The literature review focused primarily on residents sleeping in the public transportation systems in New York City. This research evaluated the tie between seasonal challenges associated with weather, current technological advancements in the MTA facilities, organizational marketing, and outreach tactics along with budgeting. The survey was created on Qualtrics and was sent to ninety contacts at nonprofit organizations that assist vulnerable individuals in New York City. Results from survey participants and organization representatives aided in increasing knowledge surrounding effective outreach that utilizes existing city resources. Secondary research was helpful in discovering the interactions between outreach, the MTA system, and challenges associated with properly reaching individuals living beyond the shelter system.

Keywords: nonprofit, outreach, digital, advertising

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Poster Number: 110

Title: Former Student Athletes' View of the Correlation between Academia and Athletics in their Postgraduate Lives

Abstract: The purpose of this research is to examine the relationship between academic achievement and athletic identity among former college athletes after college. As a former student athlete, I am interested in exploring how this research could lead to the development of theories of how athletic identity shapes student athletes after college. The concept of athletic identity has been defined as the degree to which an individual identifies with the athlete role (Brewer et al., 1993) and this has been related to both positive and negative outcomes. Studies portray the varying correlations between athletic identity, academia success and motivation; however, the goal is to develop this research into determining the transcendence of academia and athletics in lives of former athletes beyond college. Through my qualitative approach of interviews, self-reflecting journals, and questioning former male elite athletes, the question that arises is: How has former athletes athletic identity and academic journey contributed, if at all, to their lives after college? Through coding and analysis, the correlation between ones athletic identity and academic journey transcend to their current lives in many ways despite the participants previous sport, current workplace, or location of education. The goal of this research is to hope that with the development of a framework for this argument, academia and athletics can integrate throughout educational levels and curriculums in the future in order to create more successful and motivated generations.

Keywords: Athletic Identity, Work Ethic, Motivation, Student Athlete, Self- Determination theory

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Poster Number: 111

Title: The Impact of the COVID-19 Pandemic on Parent-Teacher Communication in Special Education: An Autoethnography

Abstract: The impact of parent-teacher communication has been a growing field in education; this is especially true in elementary special education classrooms. Oftentimes, communication between parents and teachers happen a handful of times a year, typically at scheduled formal meetings. Parents and teachers meet to discuss the child's progression during the school year and any possible changes to the child's special education plan as noticed in the classroom by school educators. This all shifted when the COVID-19 pandemic hit and schools across the country shut down. Many students spent over a year at home completing school remotely. Teachers began live-streaming right onto their students' kitchen tables or living room couches. With parents supervising most of their child's remote home schooling, they were receiving an inside look at what their child was learning each day as well as where their child may have struggled. Also, communication between parents and teachers shifted from in-person formal meetings to virtual platforms of communication. This autoethnography highlights my documented perspective of the impact the COVID-19 pandemic had on communication between parents and teachers. This study was specifically designed to answer the question: What impact, if any, did the COVID-19 pandemic have on parent-teacher communication from my perspective as an elementary special education educator? Data was collected through journaling and reflections on communication with parents from the 2020-2021 school year. Data was coded and developed into themes. Themes were then explored and discussed in the hopes that these findings will highlight the importance of the changes in parent-teacher communication.

Keywords: parent-teacher communication, elementary, special education, collaboration, relationships

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Poster Number: 112**Title:** College Volunteerism and Sustainable Community Partnerships

Abstract: The purpose of this study is to examine the rise of required college volunteerism and the effect it has on the communities they serve. College volunteerism and sustainable community partnerships is the focus of the study. The Academic Service-Learning that is required of students at St. Johns University assists in the investigation of learning the effects. Research prior to the study observes the effects of intrinsic motivation that students have when they are required to volunteer. The study will look into how the staff at a specific service site views and feels about this relationship and the sustainable side to it.

Keywords: college volunteerism, intrinsic motivation, academic-service learning, volunteering, college students, required work, partnerships, sustainability

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Poster Number: 113**Title:** English Language Learners' Oral Language Development

Abstract: Oral language development can help English Language Learners develop academic proficiency across content areas. The purpose of this study is to identify the scaffolding in place that support the development of oral language in classrooms full of English Language Learners. All English Language Learners must take a language proficiency test called New York State English as a Second Language Test (NYSESLAT). The test assesses students proficiency in reading, writing, listening, and speaking. I want to find out what scaffolding are in place to prepare students for this assessment and if the students' score is being affected because of these practices. This is a qualitative study on two teachers who service a full class of English Language Learners. Through observations and interviews, different scaffolds that develop oral language were identified. Teachers scaffolded instruction and strategically implemented different tiered support to develop oral language for the English Language Learners in their classroom. The supports included content vocabulary exposure with pictures, real life experiences, sentence starters, model sentence. Both teachers provided multiple opportunities to develop and practice oral language. The interactions were meaningful and engaging for the students. I kept track of teacher talk time and student talk time within a lesson. I wrote reflective memos after each visit. Data will be collected through classroom observations, teacher interviews, reflective memos and by collecting lesson plans. I would observe each teacher for 3-5 durations of 45 minutes. An interview will be conducted after the observations. I would like to conduct one interview for 30-45 minutes. I would consider additional interviews if the data does not produce enough evidence.

Keywords: English Language Learners, oral language, assessment

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Poster Number: 114

Title: Novice Educators Experiences and Perspectives of Teaching During the Covid-19 Pandemic

Abstract: The purpose of this study is to examine novice teachers' perspectives of their teaching experiences during the COVID-19 pandemic. The aim of the study is to identify any challenges, accomplishments, and insights that new teachers may have, in hopes to further research into supports that school districts, school leaders, and university pre-service programs may implement to enhance the experience and self-efficacy of both current and future novice teachers.

Keywords: experiences, perspectives, Covid-19, novice, educator

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Poster Number: 115

Title: The Teaching Experiences and Perspectives of Novice Teachers during the Covid-19 Pandemic

Abstract: This pilot qualitative research case study will be a case study that focuses on novice educators, with less than three years of experience, and their reflections and perspectives of teaching during the last three years. The question being asked is; what are novice educators' perspectives on teaching during the 2021-2022 school year, the Covid-19 Pandemic, and how, if at all has the last two years of teaching/student teaching framed their perspective? The perspectives of the educators will be synthesized and analyzed in order to generate future research questions as well as to identify areas where school districts can offer support for their new teachers. The question is being asked to gain insight into how novice teachers have experienced teaching student teaching in both remote and in-person environments, and the influence that has had on their current teaching position. Identifying challenges that they may face and accomplishments that they have made, may be an important insight into future research on the impact of remote instruction on novice teacher efficacies and general perspectives on their teaching experiences.

Keywords: Novice teacher, experience, perspectives, Covid-19, pandemic, challenge, success, efficacy, education

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Poster Number: 116

Title: Culturally Responsive Teaching in STEM Secondary School

Abstract: The purpose of this study is to explore how culturally responsive teaching could be used to engage students in classroom discussion to deepen their conceptual understanding as it connects students' culture to academic content. The increasing number of students with diverse cultural backgrounds in the United States Educational system highlights the need for teachers to embrace an instructional approach that meets the diverse learners' needs in our classroom. This study seeks to examine teachers' experiences who have engaged in culturally responsive teaching in their classrooms. This study used a purposive sampling technique to conduct a small-scale qualitative method that comprised two secondary school teachers' journal reflections and semi-structured interviews. The study's outcomes might help teachers understand teachers' experiences that might provide insight into the success stories of teachers and strategies used to improve diverse students' engagements in the classroom.

Keywords: Teachers experiences, culturally responsive teaching, students funds of knowledge, classroom engagement ,

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Poster Number: 117

Title: How, if at all, does an NCAA Division I intercollegiate women's volleyball athletes' experience during off season supervised strength and conditioning program sessions aimed at physical performance enhancement improve their self-efficacy?

Abstract: The aim of the study was to explore an NCAA Division 1 female volleyball players experience of a strength and conditioning program aimed at physical performance and the result this has on sport performance. The purpose was to use the players observations to understand the role of strength training and the effect it has on the players self-efficacy for sports performance. This phenomenological study comprised of 11 participants (ages 18 through 23) who have been involved in strength and conditioning programs between 3 to 5 years. Data was collected using semi-structured interviews. The transcribed interviews were analyzed using qualitative content analysis. From the analysis, four themes emerged. These themes were performance enhancement, injury prevention, motivational experience, and a learning experience. Study is ongoing and results will be updated. The aim of strength training can be looked at as a place to improve self-efficacy of play performance of female student-athletes. When designing a strength and conditioning program care needs to be addressed to the feelings of uncertainty of the participants; from the players perspective care needs to be taken to explain the purpose of an exercise and the benefit it will have for play performance. Other factors that play an important role in a strength training program is team motivation, individual goal setting, bonding, and communication with the strength coach, as all these items appear to be fundamentals of coaching.

Keywords: Strength training, self-efficacy, sports performance

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Poster Number: 118

Title: How, if at all, have grade 7 middle school ELA teachers' perspectives of students' interpersonal relationships in the classroom shifted post-Covid 19 remote learning?

Abstract: How, if at all, have grade 7 middle school ELA teachers perspectives of students interpersonal relationships in the classroom shifted post-Covid 19 remote learning? A qualitative pilot study of middle school teachers perspectives into students interpersonal relationships in school post-Covid 19, remote learning. Semi-structured interviews will take place for twenty to thirty minutes with individual seventh-grade middle school teachers. Audio and/or videotape will be used for individual interviews and one focus group with all three teachers. Collection and analysis of teachers reflective journals or other written artifacts they would like to share will also be included. The researcher acknowledges limitations in the lack of prior research and time constraints factoring into this pilot study. Likewise, the researcher is aware of her bias as a middle school teacher and will use triangulation and feedback from peers and professors to limit the impact of said bias.

Keywords: education, qualitative, case study

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Poster Number: 119

Title: Cross-Disciplinary Collaboration of High School Science Teachers in Non-Instructional Spaces

Abstract: The Next Generation Science Standards (NGSS) incorporate cross-cutting concepts that not only span the content areas within the science discipline such as, Chemistry and Physics, but across disciplines. The NGSS standards are aligned with and make reference to the Common Core English and Math standards. As teachers learn to adjust to these new paradigms, greater emphasis has been placed on cross-disciplinary collaboration. In this qualitative case study three public high school science teachers participated in observation and semi-structures interviews over a 6-month period. This study aims to explore how science teachers are involved in cross-disciplinary collaborations, how collaborative efforts are initiated, as well as how high school science teachers make use of common, non-instructional spaces for the purposes of collaboration.

Keywords: cross-disciplinary, collaboration, communities of practice, high school teachers, workplace learning

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Poster Number: 120

Title: Preservice Secondary Mathematics teachers experiences connecting math instruction with out-of-school experiences.

Abstract: Connecting math instruction to out-of-school experiences in the 7-12 mathematics classroom is frequently required in the math standards of teaching. Out-of-school experiences for the purpose of this study is another term used to describe real-world experiences. The purpose of this was to seek findings about preservice secondary mathematics teachers knowledge about connecting math instruction to out-of-school experiences in their teacher education preparatory programs. This was a qualitative study with two participants who were enrolled in an undergraduate teacher education program. Data was collected and analyzed from individual semi-structured interviews, focus group and the researchers reflective memos.

Keywords: Preservice secondary mathematics teachers, out-of-school, real-life, qualitative study, case study, math standards

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10:40 a.m.–Noon

Statistical Modeling and Data Collection Issues in Business and Economics -- DAC 416A

Data Protection: Is Google Misusing Users' Personal Information?

Jenna Boller (U)

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

Enterprise Regulation - Profit and Non-Profit

Mentor: Mary Noe, Criminal Justice, Legal Studies, and Homeland Security, The Lesley H. and William L. Collins College of Professional Studies

An Econometric Model of the Effect of Money Supply and Inflation on US Government Yield Curve Levels and Dynamics

Katerina Yiasoumi (G)

Business Analytics

Mentor: Manuel Russon, Business Analytics, The Peter J. Tobin College of Business

A Statistical Model to Predict FAANGM Equity Prices

Luis-Henrique F. Amaral (U)

Mentor: Manuel Russon, Business Analytics, The Peter J. Tobin College of Business

A Statistical Model to Identify Factors Affecting NBA Compensation

Robert K. Fossati (U)

Mentor: Manuel Russon, Business Analytics, The Peter J. Tobin College of Business

A Statistical Analysis of Government and Corporate Interest Rate Levels and Spreads

Emanuel Papadopoulos (U)

Finance

Mentor: Manuel Russon, Business Analytics, The Peter J. Tobin College of Business

A Non-linear, Non-Parametric Modeling of NBA Compensation

Anthony Salvia (G)

Mentor: Manuel Russon, Business Analytics, The Peter J. Tobin College of Business

Toward More Equitable Education Practices -- DAC 416B

Who Cares about Care?: A Study about Teacher-Student Relationships in A.P. History Classrooms

Christina Iannacone (G)

Mentor: Daniel Ness, Professor of STEAM Education, Department of Curriculum and Instruction, The School of Education

How do Students at St John's University Perceive the Support Provided to the LGBTQI+ Community and Report Their Own Self-awareness?

Carl Jijita (U, Ozanam Scholars Program)

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

Mentor: Rachel Hollander, English, St. John's College of Liberal Arts and Sciences

Shaping Words, Self, and Surroundings: The Intersections of Identity and Writing for LGBTQ+ Writing Center Consultants

Eleanor Myers (U, Ozanam Scholars Program)

Mentor: Steven Alvarez, English, St. John's College of Liberal Arts and Sciences

The Psychological and Academic Effects of Low Socioeconomic Status on Undergraduate Students of SJU

Ambra Gioffre (U, Ozanam)

Mentor: Carolyn Greco-Vigorito, Psychology, St. John's College of Liberal Arts and Sciences

CSI SJU -- DAC 416C (Double Session)

Fatal Swipe: A Forensic Crime Scene

Matthew Connelly

Mentor: Karl Hoffman, Criminal Justice, Legal Studies, and Homeland Security, The Lesley H. and William L. Collins College of Professional Studies

Hiking Trail Homicide: a Forensic Crime Scene Simulation

Adelina Palaj, Ashlily Porrtillo, and Michele Barbecho

Mentor: Karl Hoffman, Criminal Justice, Legal Studies, and Homeland Security, The Lesley H. and William L. Collins College of Professional Studies

Video Analysis and Discussion Sociological, Biological and Psychological Considerations

Anthony Annunziato, Sydney Lacognata, and Dylan Toby

Mentor: Karl Hoffman, Criminal Justice, Legal Studies, and Homeland Security, The Lesley H. and William L. Collins College of Professional Studies

Atlanta D.C. Snipers: A Forensic Analysis

Katherine Angelina Decoro , Katherine Jeran, Harry Ho, and Rosie Reid

Mentor: Karl Hoffman, Criminal Justice, Legal Studies, and Homeland Security, The Lesley H. and William L. Collins College of Professional Studies

Burglary Gone Wrong

Emily Hammer, Mathew Wong, and Krystal Curry (U)

Mentor: Karl Hoffman, Criminal Justice, Legal Studies, and Homeland Security, The Lesley H. and William L. Collins College of Professional Studies

Throat Slasher

Xavier Bolton (U)

Mentor: Karl Hoffman, Criminal Justice, Legal Studies, and Homeland Security, The Lesley H. and William L. Collins College of Professional Studies

America Runs on Murder: Forensic Video Crime Scene

Alyssa Savino (U)

Mentor: Karl Hoffman, Criminal Justice, Legal Studies, and Homeland Security, The Lesley H. and William L. Collins College of Professional Studies

12:15–1:40 p.m.

Navigating Marginalization and Advocacy -- DAC 416A

The Effect of Teachers on Students who are Impacted by Undocumented Status

Jillian Rosa-Figueiredo (U, Ozanam Scholars Program)

Sociology, St. John's College of Liberal Arts and Science

Mentor: Della DeKay, Associate Professor, Education Specialties, The School of Education

Technology in the Sex Trafficking Industry Since 2015: Use in the Life and In the Exit Process

Madison Dyer (U, Ozanam Scholars Program, University Honors Program)

Government & Politics, St. John's College of Liberal Arts and Sciences

Mentor: Erin Kidd, Theology and Religious Studies, St. John's College of Liberal Arts and Sciences

Effective Policy Requires Nuance: Defying Stigmatized Perceptions Of Sex Work and Sexual Humanitarianism in Aotearoa (NZ) and the United States

Grace Musser (U)

Global Development & Sustainability, St. John's College of Liberal Arts and Sciences

Mentor: Meghan Clark, Theology and Religious Studies, St. John's College of Liberal Arts and Sciences

Housing Crisis in The Bronx: How it Affects Low Income Senior Citizens

Valentina Mendez Silva (U, Ozanam Scholars Program)

Economics, The Peter J. Tobin College of Business

Mentor: Della DeKay, Education Specialties, The School of Education

Nonprofit Outreach Methods in New York City

Jacklyn Hadzicki (U, Ozanam), Business, The Peter J. Tobin College of Business

Mentor: Anne Galvin, Anthropology, St. John's College of Liberal Arts and Sciences

Facets of Global Health -- DAC 416B

Contextualizing the Hydroxychloroquine Shortage in Sub-Saharan Africa and How It Impacted Adult Systemic Lupus Erythematosus Patients

Grace Bagdon (U, Ozanam Scholars Program)

Anthropology, St. John's College of Liberal Arts and Sciences

Mentor: Philip Misevich, History, St. John's College of Liberal Arts and Sciences

Adolescent Sexual & Reproductive Health: An Ecuadorian Health Stakeholder Perspective

Joashaha Drakes (G)

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

Mentor: Tina Kanmaz, Clinical Health Professions, College of Pharmacy and Health Sciences

Stigma, the Hispanic/Latinx Community, & The Opioid Epidemic

Andrea Hincapie-Bendeck (U, Ozanam Scholars Program)

Biology, St. John's College of Liberal Arts and Sciences

Mentor: Jennifer Bhuiyan, Clinical Health Professions, College of Pharmacy and Health Sciences

Gauging the Attitudes of Black College Students on the Use of Cognitive Behavior Therapy in Addressing Symptoms of Generalized Anxiety Disorder (GAD) and Maladaptive Thinking in Individuals with the Disorder Within the Black Community

Marc-Anthony Tuo (U, Ozanam), Psychology, St. John's College of Liberal Arts and Sciences

Mentor: Joan Tropnas, Health and Human Services, The Lesley H. and William L. Collins College of Professional Studies

1:50–3:15 p.m.

Colonial Legacies, Identity, and Governance -- DAC 416A

Haitian Occupation, Dominican Independence, and the Formation of Anti-Haitian Sentiment in the Creation of a National Dominican Identity

Keren Landrón (G, Jeannette K. Watson Fellows)

Mentor: Alejandro Quintana, History, St. John's College of Liberal Arts and Sciences

French Colonial Education & Women in Algeria's FLN

Reem Nemmassi (U, Graduate Admissions Assistance Program)

Mentor: Erika Vause, History, St. John's College of Liberal Arts and Sciences

The Authoritarian Rule of Lukashenka's Belarus

Mengyuan Zheng (U, McNair Scholars Program)

Mentor: Fred Cocozzelli, Government and Politics, St. John's College of Liberal Arts and Sciences

Novel Approaches To Cancer Treatment: Small Molecule Therapeutics -- DAC 416B

Exploration of Cyclic and Acyclic Replacements of the Propyl Linker of Cjoc42 for Enhanced Binding and Anti-Cancer Activity

Tejashri Chavan (G, Women in Science)

Mentor: Aaron Muth, Pharmaceutical Sciences, College of Pharmacy and Health Science

Small molecule, Novel Benzimidazole Derivatives Closely Mimic the Biochemical and Functional Activity of BMPs

Sheyda Najafi, Leonard Sabesan, and Jeanette C. Perron (G)

Mentor: Jeanette C. Perron, Pharmaceutical Sciences, College of Pharmacy and Health Sciences

Nisin ZP for Non-Small Cell Lung Cancer (NSCLC) Treatment: In Vitro Activity and Formulation Development

Suyash Patil, Druvasarika Barji, and Nitesh K. Kunda (G)

Mentor: Nitesh Kunda, Pharmaceutical Sciences, College of Pharmacy and Health Sciences

Direct Inhibition of Survivin using YM-155 Inhibits Neuroblastoma Progression

Danielle Rouse, Rameswari Chilamakuri, and Saurabh Agarwal (G)

Mentor: Saurabh Agarwal, Pharmaceutical Sciences, College of Pharmacy and Health Sciences

Challenges to Educational Access -- DAC 416C

The Accessibility of Internships Among College Students

Erin Murray (U, Ozanam Scholars Program), Information Technology, The Lesley H. and William L. Collins College of Professional Studies

Mentor: Christopher Vogt, Theology and Religious Studies, St. John's College of Liberal Arts and Sciences

Online Course Completion and Success of Community College Developmental Students

Mary Monica Ryder (G)

Mentor: Katherine C. Aquino, Administrative and Instructional Leadership, The School of Education

Basic Needs Insecurity at St. John's University

Sabrina Rizzi (U, Ozanam), Psychology, St. John's College of Liberal Arts and Sciences

Mentor: Robert Fanuzzi, English, St. John's College of Liberal Arts and Sciences

Food Insecurity Amongst College Students

Christian Porcu (U, Ozanam), Pharmacy, College of Pharmacy and Health Science

Mentor: Anne Galvin, Anthropology, St. John's College of Liberal Arts and Sciences