



SCHOOL OF
MEDICINE



JOHN B. GRAHAM

Medical Student Research Society

UNC Medical Student Research Day

November 4

2024

About the research society

Established in 1987, the John B. Graham Medical Student Research Society recognizes and promotes the research efforts of the medical student body at the University of North Carolina School of Medicine in basic science, public health, and clinical sciences. Students who participate in the annual Student Research Day, an event dedicated to showcase the research projects of medical students, are inducted every year to the Society. Throughout the year, members exchange ideas and share their experiences about conducting research. In addition, the Society serves to encourage collaboration with faculty to promote productive research opportunities for students.

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RESEARCH DAY SCHEDULE

Monday, November 4th, 2024

Location: Roper Hall

12:00 – 1:00

Keynote Speaker

Norman Sharpless, MD
Active Learning Theater

2:30 – 3:30

Networking Hour & Appetizers

Roper Hall Lobby

3:30 – 4:30

Poster Presentations

Medical Education..... Lower level
Clinical Science..... 1st, 2nd, 3rd, 4th floor
Public Health 5th floor
Basic Science..... 6th floor

4:30 – 5:30

Oral Presentations

Medical Education..... Room 4302
Clinical Science..... Room 4310
Public Health..... Room 5302
Basic Science..... Room 5310

5:30 – 6:30

Dinner, Society Induction, Awards

Active Learning Theater
Reserved for student presenters,
judges, and faculty guest.

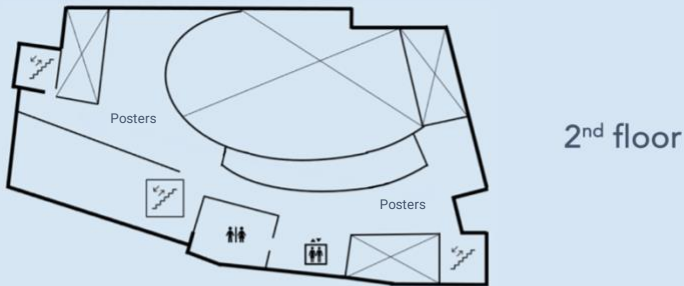
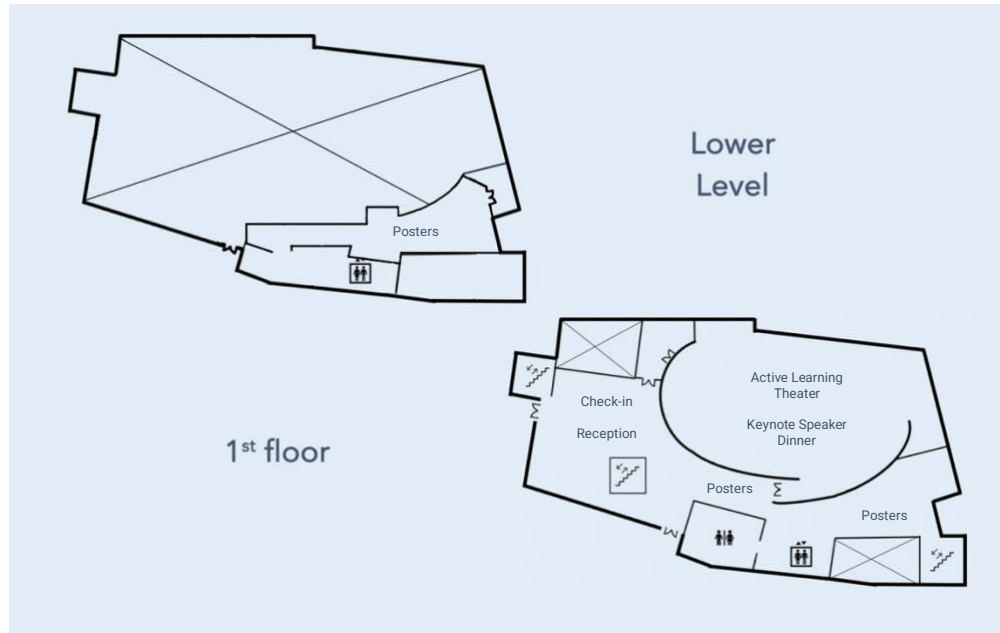
ROPER HALL MAP

Lower Level

Medical Education Posters
001-011

1st Floor

Active Learning Theater
Clinical Science Posters
101-118



2nd and 3rd Floors

Clinical Science Posters

2nd floor # 201-229

3rd floor # 301-329

4th floor # 401-429

Room 4302: Medical Education Oral Presentations

Room 4310: Clinical Science Oral Presentations

5th floor

Public Health Posters
501-521

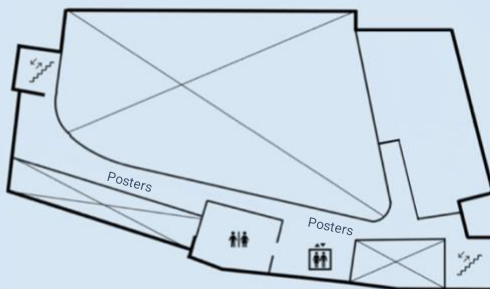
Room 5302: Public Health Oral Presentations

Room 5310: Basic Science Oral Presentations

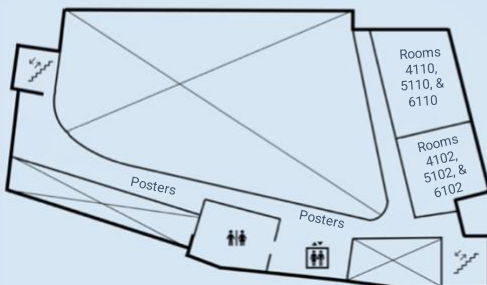
6th Floor

Basic Science Posters
601-622

3rd floor



4th, 5th, and 6th floor



Keynote Speaker

Norman E. Sharpless, MD

Norman E. (Ned) Sharpless, MD, is the Professor of Cancer Policy and Innovation at the University of North Carolina School of Medicine. He is interested in cancer therapeutics, novel cancer diagnostics and the intersection of healthcare policy and cancer care.



Dr. Sharpless is the former Director of the National Cancer Institute (2017-2022) and Acting Commissioner of Food and Drugs the U.S. Food and Drug Administration (2019). Before that appointment, Dr. Sharpless was the Director of the UNC Lineberger Comprehensive Cancer Center (2014-2017), and a Wellcome Distinguished Professor of Medicine and Genetics at UNC-Chapel Hill (2012-2017).

Dr. Sharpless was a Morehead-Cain Scholar at UNC-Chapel Hill, earning his undergraduate degree in mathematics (with distinction) and his medical degree (with honors and distinction) from the UNC School of Medicine. He completed his residency training at Massachusetts General Hospital and his clinical and research fellowship in hematology and oncology at Dana-Farber/Partners Cancer Care in Boston.

Dr. Sharpless is a member of the Association of American Physicians, the American Society for Clinical Investigation, the American Association for Cancer Research Academy, and the National Academy of Medicine.

Student Research Day Team 2024-2025

Co-Presidents of John B. Graham Research Society



Nishita Sheth



Zach Schrank



Ricardo Crespo-Regalado

Vice-Presidents of Student Research Day



Chelsea Li



Alexandra Weir



Tooba Rashid



Victor Madormo

Treasurer and VP of Advertising and Outreach



Jordan Besh



Emily Kounlavong

For any questions about Student Research Day logistics, please contact any member of the Student Research Day team.

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Oral presentations

4:30 – 5:30 pm

<i>Medical Education</i>	Room 4302
<i>Clinical Science</i>	Room 4310
<i>Public Health</i>	Room 5302
<i>Basic Science</i>	Room 5310

Public Health

- Myrha Qadir Adolescents' and Young Adults' Exposure to E-cigarette Retail Stores On their Path to/from School, Association with Past 30-day use and Susceptibility to future use.
- Cambray Smith Community-engaged development of a curriculum to teach clinicians how to talk to adolescents about online information about contraception
- Isabelle Keim How immunization information systems inform HPV vaccination recommendations: a mixed-methods study of practices in US jurisdictions
- Catherine Li Per-protocol effects of dolutegravir-based therapy compared to standard of care in children living with HIV in the ODYSSEY trial

Clinical Science

- Katharine Bruce Association between HPA Axis Dysregulation and Postpartum Depression and Anxiety Symptoms in Breastfeeding vs Bottle-feeding Parents
- Andrew Caddell Complete Pathologic Necrosis as a Predictor of Long-Term HCC Recurrence
- Sapphire Bowen-Kauth Atypical alpha rhythm development in Angelman syndrome
- Estefania Gonzales Enhancing maternal care through the implementation of a multidisciplinary protocol: a quality improvement initiative at UNC-Chapel Hill

Basic Science

- Rani Richardson GHSR blockade, but not reduction of peripherally circulating ghrelin via β 1-adrenergic receptor antagonism, decreases binge-like alcohol drinking in mice
- Cherise Glodowski Using Single Cell RNA-Sequencing to Detect Tumor Heterogeneity and Drug-Tolerant Persister Cell Populations in Triple Negative Breast Cancer Mouse Models
- Darren Schuman Intracameral Puncture Induced Inflammatory Response and IOP Reduction
- Marco Fanous Utilizing Novel Fluorine-19 Particles for CAR-T Cell Labeling and In-Vivo MRI Tracking to Improve Solid Tumor Therapy

Oral presentations

4:30 – 5:30 pm

<i>Medical Education</i>	<i>Room 4302</i>
<i>Clinical Science</i>	<i>Room 4310</i>
<i>Public Health</i>	<i>Room 5302</i>
<i>Basic Science</i>	<i>Room 5310</i>

Medical Education

- Elizabeth Branch Human Heritable Genome Editing and its Governance: Views of Scientists and Governance Professionals
- Zane Kaiser Novel Image Guided Transcervical Intralaryngeal Injection Trainer, Improves Skill Acquisition for Novice Injectors
- Alexander Requarth Exploring How Time Expenditure Effects Graded Performance and Happiness of Pre-Clerkship Medical Students

Oral presentation

Public Health

Adolescents' and Young Adults' Exposure to E-cigarette Retail Stores On their Path to/from School, Association with Past 30-day use and Susceptibility to future use.

01

Myrha Qadir, Madison O'Connel, Lydia Shrier, Bonnie Halpern-Felsher, Shivani Gaiha

Abstract:

Background: Recent national data highlight considerable e-cigarette use among school-going adolescents, with concerns about marketing exposure near schools. However, few studies have examined adolescent and young adult (AYA) exposure to e-cigarette marketing during their school commute or its impact on susceptibility to future e-cigarette use among never-users.

Methods: We surveyed 5,326 U.S. 13-24-year-olds via Qualtrics. Participants reported their e-cigarette use history and exposure to stores selling e-cigarettes on their school commute. Susceptibility to future e-cigarette use among never-users was assessed using a modified Enhanced Susceptibility to Smoking Index. Logistic regression examined the association between store exposure and 1) current e-cigarette use and 2) susceptibility to future use among never-users. Analyses were stratified into age groups (13-17y, 18-24y) and adjusted for age, gender, race/ethnicity, and urban/rural/suburban area.

Results: Over half (56.7%) of all participants encountered stores selling e-cigarettes on their school commute. Commonly recalled retailers included gas stations, convenience stores, and specialty vape shops. AYA with store exposure had significantly higher odds of past-30-day e-cigarette use compared to those unexposed (aOR= 2.25, 95% CI 1.97, 2.57, $p < .001$). Among 13-17-year-olds who had never used e-cigarettes, exposure was associated with increased susceptibility to future use (aOR= 1.54, 95% CI 1.27, 1.87, $p < .001$).

Conclusion: These findings underscore the influence of e-cigarette retail environments on AYA behavior and suggest benefit to restricting retail licensing near schools to curb e-cigarette initiation. Future research should explore initiation patterns among susceptible non-users and evaluate effective preventive measures.

Oral presentation

Public Health

Community-engaged development of a curriculum to teach clinicians how to talk to adolescents about online information about contraception

02

Cambray Smith, Hailey Leiva, Janki Patel, Emma Brockman, and Bianca Allison

Abstract:

Background: Adolescents frequently encounter information about contraception online, which ranges in quality. Misinformation about contraception can have negative impacts on shared decision-making. Our objective was to develop a curriculum to teach clinicians about discussing online health information about contraception with adolescents, embedded in a larger equity-focused, adolescent-adapted patient-centered contraceptive counseling training program for pediatric clinicians.

Methods: We recruited three advisory boards of 1) adolescents, 2) parents, and 3) clinicians. During 5 monthly sessions with each group, we gathered feedback on the training program content, approach, and material development. We used this feedback, results of a focused literature review, and an adapted Framework for Discussing Online Health Information to inform the curriculum, which was revised iteratively with advisors.

Results: We met with N=20 advisors (N=15 meetings) to co-create a 3-hour interactive synchronous virtual training curriculum with 5 total modules, one of which is called Supporting Teens with Online Health Information. This module includes: 1) an overview of adolescent online health information-seeking; 2) an update on the content and quality of contraception-related information on social media; 3) a summary of factors that influence adolescent trust in online health information; 4) recommendations for clinicians; 5) an interactive case study; and 6) scripted language that may be helpful for clinicians.

Conclusion: This novel curriculum was developed with the guidance of three advisory boards to address a pressing issue in adolescent sexual and reproductive health. A future pilot intervention will evaluate the implementation of this curriculum within the larger person-centered contraceptive counseling training program.

Oral presentation

Public Health

How immunization information systems inform HPV vaccination recommendations: a mixed-methods study of practices in US jurisdictions

03

Isabelle Keim*; Kristy Westfall; Deanna Kepka; Gregory Zimet; Sherri Zorn; Nadja A. Vielot*, PhD (*equal contribution)

Abstract:

Background: Human papillomavirus (HPV) vaccination can prevent up to 90% of HPV cancers, and vaccination at the earliest opportunity (age 9) can promote timely and complete vaccination. Immunization information systems (IIS) can guide providers' recommendations for HPV vaccination, but little is known about the implementation of HPV vaccination forecasting across jurisdictions.

Methods: We documented the HPV vaccination forecasts according to each jurisdiction's IIS through an exhaustive internet search and direct requests to immunization managers. Next, we conducted focus group discussions (FGDs) with multiple jurisdictions to document the processes for determining and implementing IIS forecasts.

Results: We gathered IIS data from 46 jurisdictions. Twelve (26%) recommend HPV vaccination at age 9 compared to 34 (74%) that recommend at age 11, 12, or 15. Eight states participated in FGDs. Those that recommended age-9 HPV vaccination cited American Cancer Society and American Academy of Pediatrics positions and reported little or no opposition from providers. STC users report flexibility in manipulating their forecast settings; those that lowered the recommended age to 9 years did so easily. States that recommend vaccination at age 11-12 prefer to wait until the CDC changes its universal recommendation to age 9 before they update their forecasts. IIS interoperability with electronic health records has unclear impacts on how providers view and utilize IIS forecast data.

Conclusions: US jurisdictions are gradually embracing age-9 HPV vaccination as reflected in their IIS forecasting. Jurisdictions can learn from each other's experiences, and future studies can evaluate the effects of age-9 forecasting on vaccination rates.

Oral presentation

Public Health

Per-Protocol Effects of Dolutegravir-Based Therapy Compared to Standard of Care in Children Living With HIV in the ODYSSEY Trial

04

Catherine X. Li, Stephen R. Cole, Ian R. White, Jingyi Xuan, Anna Turkova, Ellen White, Deborah Ford

Abstract:

Background: The ODYSSEY trial was a randomized trial in 707 children aged 2-18 years living with HIV that investigated first or second line initiation of dolutegravir-based ART compared to standard care ART. The primary efficacy outcome in ODYSSEY was clinical or virologic failure by 96 weeks, for which the estimated intent-to-treat (ITT) effect was -0.08 (95% CI: -0.14, -0.03).

Methods: In re-analyses of ODYSSEY, we use modern causal inference methods (i.e., inverse probability weighting, g-computation) to account for protocol deviations and medication non-adherence to estimate per-protocol effects, the effect of being randomized to and staying on protocol through 96 weeks. All models accounted for trial arm and first vs. second line therapy; baseline sex, age, mode of transmission, country; and time-varying CD4 count and HIV viral load.

Results: By 96 weeks, 38% of participants had at least one study visit where the child or caregiver reported medication non-adherence, 7% had trial-defined protocol deviations or switched treatment before meeting the primary outcome, and 2% were lost to follow up. The estimated risks of treatment failure had everyone in the ODYSSEY trial remained on allocated treatment and not reported missing any doses of assigned therapy was 0.11 (95% CI: 0.07, 0.15) in the dolutegravir arm and 0.21 (95% CI: 0.15, 0.26) in the standard care arm, giving an estimated per-protocol effect of -0.10 (95% CI: -0.16, -0.03).

Conclusions: Rigorously estimating per-protocol effects alongside ITT effects can help us better assess ART treatment efficacy in children when trial protocol adherence is imperfect.

Oral presentation

Clinical Science

Association between HPA Axis Dysregulation and Postpartum Depression and Anxiety Symptoms in Breastfeeding vs Bottle-feeding Parents

01

Katharine E. Bruce, Kathryn Wouk, Karen M. Grewen, Brenda Pearson, Samantha Meltzer-Brody, Alison M. Stuebe, Anna E. Bauer

Abstract:

Background: Hypothalamic-pituitary-adrenal (HPA) axis dysregulation has been implicated in perinatal mood disorders. We hypothesized 1) postpartum depression/anxiety symptoms would be associated with HPA axis dysregulation, indexed by loss of expected ACTH-cortisol coupling, and 2) this association would vary by infant feeding method.

Methods: Participants were recruited in their 3rd trimester of pregnancy. During a lab visit at 2 months postpartum, depression/anxiety symptoms were assessed (Beck Depression Inventory ≥ 14 and/or Spielberger State-Trait Anxiety Inventory ≥ 40). Participants breast or bottle-fed their infants as they would at home, then completed the Trier Social Stress Test (TSST), a standardized lab stressor. ACTH and cortisol were measured 10 minutes after feeding, during TSST, and at 10, 20, and 30 minutes recovery. Multilevel models evaluated whether coupling of ACTH at time j with cortisol at time $j+1$ differed by depression/anxiety symptoms, and whether differences varied by feeding method.

Results: Of 205 participants, 44 had depression/anxiety symptoms. Depression/anxiety symptoms were associated with reduced ACTH-cortisol coupling (adjusted beta: -0.03; p-value: 0.03). Among those who breastfed, those with depression/anxiety showed greater blunting of ACTH-cortisol coupling than those without (adjusted beta: -0.04; p-value: 0.02), while those who bottle-fed had similar coupling patterns regardless of symptoms (adjusted beta: -0.01; p-value: 0.87).

Conclusion: HPA axis response was blunted in those with postpartum depression/anxiety symptoms, supporting HPA axis dysregulation in perinatal mood disorders. Future research should explore how breastfeeding influences the relationship between perinatal mood disorders and HPA axis dysregulation. Elucidating mechanistic pathways underlying perinatal mood disorders can aid in development of better diagnostic and treatment strategies.

Oral presentation

Clinical Science

Complete Pathologic Necrosis as a Predictor of Long-Term HCC Recurrence

02

Andrew Caddell, Nima Kokabi, Minzhi Xing

Abstract:

Background: In patients with hepatocellular carcinoma (HCC), complete pathologic necrosis (CPN) on explant is associated with improved outcomes; however, the rate of CPN associated with different bridging locoregional therapies (LRTs) remains under-investigated.

Objective: To evaluate the impact of CPN on long-term post-transplant outcomes using a national sample of patients with solitary HCC who underwent liver transplantation (LT) after LRT.

Methods: The United Network for Organ Sharing (UNOS) database was used to identify all patients with treatment-naïve HCC measuring <3 cm who underwent single LRT (transarterial chemoembolization [TACE], transarterial radioembolization [TARE], or thermal ablation [TA]) and received LT between 2012 and 2022. Patients were determined to have CPN if they had 100% necrosis of all tumors on explant. Associations between LRT type, CPN, and recurrence rate were evaluated using chi-squared tests or Fisher's Exact tests.

Results: Of the 16,925 patients with HCC who underwent LT, a total of 2,869 patients (median age 63 years; 77.6% male) received a single modality of bridging LRT for HCC between 2012 and 2022 (1,860 [64.8%] TACE; 374 [13.0%] TARE; 635 [22.1%] TA). Patients with CPN had a significantly lower rate of recurrence post-LT compared with those who had no CPN (2.0% vs. 6.4%, $p < 0.0001$). The rate of achieving CPN differed significantly between treatment groups: 21.2% for TACE, 38.0% for TARE, and 39.1% for TA ($p < 0.0001$).

Conclusion: CPN was associated with a significantly lower rate of HCC recurrence. There are significant differences in CPN rate based on LRT modality used to bridge HCC patients to LT.

Oral presentation

Clinical Science

Atypical alpha rhythm development in Angelman syndrome

03

E M. Sapphire Bowen-Kauth, Anna E. Youngkin, Jeremy J. Shide, Nishitha S. Hosamane, Courtney A. McNair, Declan P. Ryan, Katherine G. Walsh, Catherine J. Chu, Abigail H. Dickinson, Michael S. Sidorov

Abstract:

Background: Angelman syndrome (AS) is a neurodevelopmental disorder characterized by severe intellectual disability and motor impairments. AS is caused by the loss of function of the maternally expressed UBE3A gene. Clinical trials aiming to reinstate the silenced paternal UBE3A allele are currently underway. These trials need safe, quantifiable biomarkers linked to clinically meaningful outcomes. Electroencephalography (EEG) safely monitors brain rhythms in children with AS. While we have previously demonstrated that delta EEG rhythms are increased in children with AS, other biomarkers are needed to assess neural activity throughout a broader age range. Peak alpha frequency (PAF), the frequency where oscillations in the alpha range are the strongest, increases across development in neurotypical children. Our prior work demonstrated that PAF does not develop normally in children with autism.

Methods: We tested the hypothesis that PAF does not develop normally in AS and evaluated its potential as a biomarker. We quantified over 160 EEGs from male and female individuals with AS gathered via the AS Natural History Study and age-matched neurotypical controls ranging from 6 months to 14 years.

Results: We found that PAF development did not follow a typical trajectory in children with AS. While PAF increased across development in the neurotypical population, PAF did not increase as a function of age in children with AS. Furthermore, PAF was more difficult to detect in EEGs from children with AS.

Conclusions: Our work suggests that PAF may be a potential biomarker for AS. Ongoing work seeks to correlate PAF with clinical severity.

Oral presentation

Clinical Science

Enhancing maternal care through the implementation of a multidisciplinary protocol: a quality improvement initiative at UNC-Chapel Hill

04

Estefania Gonzales MS3, Kaila Moore MS2, Sarah Nyante MSPH PhD, Minzhi Xing MD MPH, Nikki Keefe MD, Gloria Salazar MD FSIR

Abstract:

Background: Uterine artery embolization (UAE) is an effective treatment for uterine arteriovenous malformations (AVMs) and postpartum hemorrhage (PPH). Despite its efficacy, the utilization of UAE is often limited due to a lack of access and implementation protocols. In 2021, UNC Vascular-Interventional Radiology (VIR) implemented a clinical protocol designed to enhance communication and collaboration between Ob-Gyn and VIR teams, aiming to improve the timely management of high-risk pregnancies and emergency obstetric conditions, including Placenta Accreta Spectrum (PAS).

Methods: A joint protocol was established in 2021 outlining when to initiate emergency VIR intervention based on prior outcomes. Additionally, a formal protocol was established for PAS cases with VIR involvement. This quality improvement project involves a retrospective analysis of UAE procedures performed at UNC before and after the protocol implementation. Data from 2015 to 2024 were analyzed to assess the frequency of UAE procedures and maternal outcomes. The analysis also included a review of patient demographics to determine whether the protocol impacted maternal interventions across identity groups.

Results: The average number of peripartum UAE procedures increased from 5.86 to 17.25 per year post-protocol ($p < 0.05$). A total of 65 UAE procedures were performed for high-risk pregnancies since 2021, 19% of which were patients with PAS. The protocol facilitated prompt activation of VIR teams in both elective and emergency settings. The distribution of patients by race/ethnicity remained relatively stable ($p = 0.363$), indicating consistent access to care across demographic groups.

Conclusion: A multidisciplinary protocol at UNC has significantly increased the use of UAE, including in the management of PAS cases, demonstrating the importance of structured communication and collaboration in improving maternal care in NC. This project serves as a model for expanding access to women's health interventions, developing high-level emergency VIR training and addressing disparate outcomes in the care of high-risk pregnancies.

Oral presentation

Basic Science

GHSR blockade, but not reduction of peripherally circulating ghrelin via β 1-adrenergic receptor antagonism, decreases binge-like alcohol drinking in mice

01

Rani S. Richardson, Lindsay A. Kryszak, Janaina C. M. Vendruscolo, George F. Koob, Leandro F. Vendruscolo, and Lorenzo Leggio

Abstract:

Background: Alcohol use disorder (AUD) is a highly prevalent public health issue, and binge drinking is a common and harmful step in AUD. Prior work has implicated the stomach-derived peptide ghrelin in alcohol-related outcomes. Ghrelin receptors (GHSR) are expressed in the brain and the periphery. We previously found that both intraperitoneal and intracerebroventricular administration of GHSR antagonists reduced alcohol intake in a mouse model of binge drinking, whereas sequestering circulating ghrelin with a vaccine did not. Thus, our hypothesis is that binge-like drinking is reduced by central GHSR antagonism independently of peripheral ghrelin. To investigate this hypothesis, we targeted beta-1 adrenergic receptors (beta-1ARs), which are required for secretion of peripheral ghrelin. However, the involvement of beta-1ARs has not been addressed a) in a model of alcohol binge drinking b) central vs. peripheral signaling and c) in subjects of both sexes. We tested the hypothesis that beta-1AR blockade will reduce blood ghrelin levels in male and female mice, and this will have no effect on binge-like alcohol drinking.

Methods: We administered two beta-1AR blockers intraperitoneally: atenolol (AT, peripherally restricted) and metoprolol (MT, brain permeable). We used male and female adult C57Bl6 mice.

Results: Found that MT but not AT decreased alcohol intake; yet MT and AT both decreased blood ghrelin levels. We observed no significant sex differences.

Conclusions: These results suggest that central but not peripheral beta-1ARs drive binge-like alcohol drinking, yet the peripherally-circulating ghrelin peptide may not. In conclusion, both beta-1ARs and GHSRs represent possible targets for treatment of AUD.

Oral presentation

Basic Science

Using Single Cell RNA-Sequencing to Detect Tumor Heterogeneity and Drug-Tolerant Persister Cell Populations in Triple Negative Breast Cancer Mouse Models

02

Cherise R. Glodowski, Alexander Lobanov, Kevin R. Mott, Charles M. Perou

Abstract:

Background: Triple Negative Breast Cancer (TNBC) is an aggressive disease that accounts for 10-20% of breast cancer cases. Intra-tumoral heterogeneity and cell plasticity are thought to contribute to drug resistance in TNBCs. This work aimed to: 1) identify cell state heterogeneity within TNBCs, and 2) test whether these drugs alter cellular subpopulations. We hypothesized that treatment(s) induce cellular subpopulation shifts into resistant states.

Methods: We conducted single cell RNA-sequencing (scRNA-seq) on 25 treated and untreated TP53^{-/-} Genetically Engineered Mouse Model (GEMM) syngeneic transplant tumors of the basal-like TNBCs and generated a combined scRNA-seq dataset. Treatments included carboplatin/paclitaxel as well as inhibitors of EGFR, MEK, BRD4, and DHODH. To examine response to treatment, we performed bioinformatics analyses using Canonical Correlation Analysis and inferCNV. Gene signatures generated were checked for prognostic value using the CAL 40603 human dataset.

Results: We have identified clear intra-tumoral heterogeneity in the integrated GEMM dataset, and found different treatments gave rise to 2 rare subpopulations (1-4%) that express genes consistent with previously described drug-tolerant persisters (DTP), annotated "Epithelial-DTP" and "Mesenchymal-DTP". The Epithelial-DTP gene expression signature predicted poor outcomes in TNBC patients.

Conclusion: Overall, this study provides new insights on TNBC heterogeneity and response to treatment. Tumor cell state frequencies are altered in response to treatment. The data provide further evidence that there exist drug-tolerant subpopulations and that cell state plasticity may be induced by targeted treatments. Identifying these rare drug-resistant cells and the means to eradicate them could vastly improve TNBC therapeutic regimens.

Oral presentation

Basic Science

Intracameral Puncture Induced Inflammatory Response and IOP Reduction

03

Darren Schuman, Aleks Grimsrud, Megan Kuhn, Michael De Ieso PhD, Daniel Saban PhD, Dan Stamer PhD, Katy Liu MD/PhD

Abstract:

Background: Intracameral injections are an effective delivery method to conventional outflow tract tissues. This route has become popularized for delivering biomedical agents to tissues within the eye. However, the change in aqueous dynamics have not been well characterized, both at the bench or bedside.

Methods: Age-appropriate mice were subjected to an intracameral puncture (ICP) and aqueous dynamics were studied thereafter. We measured intraocular pressure (IOP), aqueous production, outflow facility, episcleral vessel diameter, and macrophage density. Macrophage densities were measured for up to 14 days. Intraocular pressure was followed for up to 14 days. Facility, vessel diameter, and aqueous production were measured on day 1.

Results Macrophage density was significantly increased in Schlemm's Canal (SC) (n=15, $p < 0.0001$) and trabecular meshwork (n=15, $p < 0.0001$) beginning at day 3 post ICP. Macrophage density was also significantly increased around distal vessels (n=15, $p < 0.0005$) at day 1. At day 1 IOP significantly decreased (n=25, $p < 0.0001$) while facility increased, but was statistically insignificant (n=15, $p = 0.3626$). Also, on day 1 there was no significant change in aqueous production (n=9, $p = 0.3058$). Episcleral vessel dilation was observed in arterioles, venules, and capillaries (n=125, $p < 0.0001$, $p < 0.0001$, and $p < 0.001$), respectively, while SC area was unchanged at day 1 post ICP.

Conclusions: This data shows there is a significant reduction in intraocular pressure one day following tranacorneal puncture. At the same time, there is an influx of macrophages that may be contributing to decreasing IOP, but further investigation is needed. Dilation of the downstream episcleral vasculature at day 1 post ICP may also be contributing to IOP reduction.

Oral presentation

Basic Science

Utilizing Novel Fluorine-19 Particles for CAR-T Cell Labeling and In-Vivo MRI Tracking to Improve Solid Tumor Therapy

04

Marco Fanous, B.S., Truc Thanh Nguyen B.S., Zhanhong Wu, PhD, Zibo Li, PhD, Yueh Z. Lee MD, PhD, Jeremy Meier MD, PhD

Abstract:

Background: Chimeric antigen receptor (CAR) T cell therapy has revolutionized hematologic cancer treatment, but its application in solid tumors remains limited due to a lack of understanding of CAR T cell dynamics in vivo. Tracking CAR T cell biodistribution is essential to improving their tumor targeting. Here, we utilize Fluorine-19 (19F) particles for MRI/SPECT cell tracking in a breast cancer mouse model.

Methods: Murine splenocytes were isolated and conditioned into Th/Tc17 cells. Anti-Neu CAR-T cells were generated using a gamma retrovirus and labeled with 19F perfluorocarbon particles (PFCs) by simple incubation. Labeled cells were washed and tested for viability and functionality using flow cytometry. Cells were injected into the 4th mammary fat pad of Neu+ breast cancer mice, and imaging was performed using a 9.4T MRI scanner.

Results: Figure 1. Labeling did not impact cytokine secretion, and no toxicity was observed in 19F-labeled cells compared to controls at increasing concentrations of PFCs (Fig. 1). Figure 2. In vitro, CAR transduction did not affect Tc17 cell labeling. CAR+ and CAR- Tc17 cells were labeled, subjected to flow cytometry and MRI. The 19F signal showed comparable labeling efficiency regardless of CAR presence (Fig. 2A). MRI confirmed labeling with consistent results (Fig. 2B). Figure 3. MRI of breast tumors and signals were noted in Lungs (yellow), Spleen (red), and Liver (green). (Prelim)

Conclusions: Our data demonstrate successful 19F labeling of CAR T cells without affecting functionality. This method enables in vivo tracking of CAR T cells, offering insights for improving CAR T cell tumor trafficking and efficacy in solid tumor therapies.

Oral presentation

Medical Education

Human Heritable Genome Editing and its Governance: Views of Scientists and Governance Professionals

01

Margaret Waltz, John M. Conley, Rami M. Major, Elizabeth K. Branch, Eric T. Juengst, Michael A. Flatt and R. Jean Cadigan

Abstract:

Background: Heritable human genome editing has become a topic of intense debate in both academic and public spheres. Yet there remain unresolved questions regarding the ethical permissibility and regulation of this technology.

Methods: We conducted interviews with two key groups: scientists actively using genome editing techniques in their research, and professionals involved in the governance of human genome editing. The interviews focused on their perspectives regarding the permissibility of heritable genome editing and their views on necessary and realistic governance strategies.

Results: Views on permissibility ranged between the belief that heritable genome editing was completely off limits ethically to promoting permissibility with rigid ethical guidelines implemented. While globally recognized boundaries were generally thought to be necessary, challenges regarding international enforcement were cited as barriers for both soft and hard forms of governance.

Conclusion: The divergent opinions expressed by the interviewed scientists and governance professionals underscore the complexities associated with implementing stringent regulatory measures for heritable genome editing. This study contributes to the ongoing dialogue on how best to navigate the ethical and regulatory landscape of heritable human genome editing, highlighting the need for continued discussion and careful consideration of various governance strategies..

Oral presentation

Medical Education

Novel Image Guided Transcervical Intralaryngeal Injection Trainer, Improves Skill Acquisition for Novice Injectors

02

Zane Kaiser, BS; Abdullah Zeatoun, MD; Rupali Shah, MD; Robert Buckmire, MD

Abstract:

Objective(s): To assess the impact of a novel 3D-printed simulation model with Brainlab Image Guidance on enhancing otolaryngology residents' skills and confidence in performing Transcervical Intralaryngeal Injection (TII) compared to conventional training methods.

Methods: Utilizing a 3D-printed larynx model derived from CT scans, this study involved sixteen otolaryngology residents divided into two groups for TII training: one with Brainlab Image Guidance (LMIG) and the other without (LM). Pre- and post-training evaluations measured participants' confidence while the Brainlab system measured the accuracy of their needle placements.

Results: After training, participants exhibited a significant increase in confidence, with an average rise from 1.56 to 2.75 on a 5-point scale. The LMIG group outperformed the LM group in accuracy, achieving statistically significant reductions in target distances after training (3.5 mm right, 3.6 mm left). The LMIG also demonstrated a significantly greater increase in procedural confidence over the LM group after training.

Conclusion: The TII laryngeal model with Brainlab Image Guidance significantly improves procedural confidence and accuracy among otolaryngology residents, signifying potential advantage over a more simplistic training approach. The model's realistic tactile and live instrument positioning feedback differentiate it as useful tool for residency training programs, aiming to refine surgical skills in a controlled, risk-free environment.

Oral presentation

Medical Education

Exploring How Time Expenditure Effects Graded Performance and Happiness of Pre-Clerkship Medical Students

03

Alexander Requarth, Matthew Garr, Zane Kaiser, Chris Weisen, Kurt Gilliland

Abstract:

Background: Medical students endure intense academic demands, which often lead to elevated stress levels, reduced happiness, and compromised well-being. The pressures of balancing coursework, clinical responsibilities, and personal life can negatively impact both academic performance and quality of life. This prospective study aimed to explore time allocation patterns and their influence on happiness and academic performance in a medical school setting.

Methods: This IRB-approved prospective study at UNC Chapel Hill School of Medicine enrolled 49 second-year medical students from October to December 2023. Participants tracked their activities hourly across 28 categories (e.g., studying, socializing, sleep, exercise) and rated happiness at the end of each day (scale: 1-100). Demographics and graded performance data were also collected and analyzed using SAS software.

Results: Analysis of over 80,000 data points revealed a multitude of significant trends including family time as the most significant factor in increasing daily happiness ($p < 0.0001$). Happiness was also positively correlated with total hours of socializing ($p < 0.0001$) and sleep ($p = 0.0061$), while negative correlations were found with workload ($p < 0.0001$), studying ($p < 0.0001$), and TV/video games ($p < 0.0001$). Students scoring 70%-79% watched more hours of lecture than those in the 90%-99% range (10.33 ± 5.15). Repro Final grades positively correlated with Baby Step scores ($r = 0.55407$, $p = 0.0170$). Post-Monday exam study hours significantly decreased ($p < 0.0001$), with no change after Friday exams.

Conclusion: This study highlights the importance of family time and sleep in improving well-being. Adjusting exam schedules, especially reducing Monday exam intensity, and incorporating flexible learning periods could enhance student happiness, support mental health, and improve academic performance.

Poster Presentations

Posters are categorized as medical education (ME), public health (PH), clinical science (CS), or basic science (BS).

#	Topic	Presenter	Title
01	ME	Darvinash Chanda Mohan	The Nasocardiac Reflex: A case of profound hypotension and bradycardia following insertion of nasal endoscope
02	ME	Cordelia R Muir	Impact of Abortion Legislation on North Carolina Medical Students' Perceptions Of Abortion Training Availability
03	ME	Lana Prieur	Communication style drives emergent leadership attribution in virtual teams
04	ME	Angelica Rae Lackey	Assessing needs and readiness for trauma-informed learning and teaching environments at UNC School of Medicine
05	ME	Sophie Korenek	Likes and dislikes: the role of social media groups in support and advocacy for patients with Thoracic Outlet Syndrome
06	ME	Emily Walton	Effects of North Carolina Abortion Legislation on Medical Students' Preferences for OB-GYN Residency
07	ME	Sarah Krug	Navigating Cancer Care Through Social Media: Themes and Insights from Facebook Support Groups for Breast and Ovarian Cancer
08	ME	Jack O'Hara	National Point of Care Ultrasound Needs Assessment
09	ME	Joshua Hale	Generative AI in Undergraduate Medical Education: A Rapid Review
010	ME	Arvind Rajan	Can AI Grade Like a Professor? Comparing Artificial Intelligence and Faculty Scoring of Medical Student Short-Answer Clinical Reasoning Exams
011	ME	Odai Mansour	Examining Tolerance for Ambiguity and Need for Cognitive Closure Through Medical Education
101	CS	Lyndsay Cooper	Identifying pre-habilitation targets for the mitigation of long-term side effects of chemotherapy in patients with early breast cancer
102	CS	Asia Brannon	Transforming Doula Training: Evaluating the Effectiveness of the LEADoula Program
103	CS	Austin Coale	A Comparison of Long-Term Outcomes of Recurrent vs Nonrecurrent Ventral Hernias

104	CS	Malek Mitchell	Evaluating Perioperative Variations of Neurofilament Light Chain Serum Levels to Enhance Postoperative Delirium Detection in Older Adult Cardiac Surgery Patients
105	CS	Samuel O'Rourke	Elective versus corrective cochlear implant revision surgery of legacy internal arrays
106	CS	Annmarie Wang	Prehospital CPR is not Associated with Improved Survival in Patients with Penetrating Injuries
107	CS	Shernice Martin	Barriers to Cervical Cancer Screening in an Urban Underserved Population
108	CS	Aylin Memili	Conducting Abdominal Aorta Aneurysm Screenings by Family Physicians: Assessing Reliability of Findings
109	CS	Michael Lee	Clinical Characteristics and Predictors of Outcome in Pediatric ANCA Vasculitis: Single-Center, Inception Cohort
110	CS	Brayan Corona-Macedo	The Role of Neuroinflammation in the Pathogenesis of Alzheimer's Disease: A Literature Review
111	CS	Luke Passannante	Full Thickness Skin Grafts: A Review and Update of Common and Unique Donor Sites
112	CS	Sheel Joshi	Rate of Hospitalizations for Heart Failure with Tricuspid Regurgitation Differ by Race
113	CS	Anahita Gupta	Evaluation of Stress Reduction Techniques on the Manifestation of Oral Lichen Planus
114	CS	Samuel Haddad	Water use in the UNC Hospitals Dialysis Unit and Strategies for Conservation
115	CS	Talha	Metabolic Irregularities Associated with Depression in Alzheimer's Patients: Insights from [18F] FDG PET/CT Imaging
116	CS	Bryan Obika	Using Point-of-Care-Ultrasound to Assess Gastric Contents among Fasting Pre-Operative Patients Taking GLP-1 agonists in UNC Hospitals
117	CS	Jake Reed	Outcomes After AC Joint Injuries in Adolescent Athletes
118	CS	Lenora Hundertmark	Investigation of Factors Associated with Sexual Assault Evidence Collection Kit Usage by Sexual Assault Nurse Examiners at UNC Hospitals
201	CS	Nathaniel Adams	STAC3 Disorder: Characterizing the Musculoskeletal Phenotype
202	CS	Cynthia Tang	Defining the association of cilia ultrastructure and genotype in pulmonary exacerbations in primary ciliary dyskinesia
203	CS	Cody Clayhold	Survival and Toxicity Outcomes of Dose Escalated SBRT for High-Risk Prostate Carcinoma

204	CS	Yang Lee	Comparison of Nasal Airflow Changes Following Dorsal Preservation Rhinoplasty and Butterfly Graft Placement in a Cadaveric Model
205	CS	Michael Ly	Discrepancies between subjective and objective measures of olfactory function: Attempts at developing a better subjective test.
206	CS	Sierra Parkinson	Patch Test Sensitization During the COVID-19 Pandemic and Comparison Between Two Propolis Vendors
207	CS	Shirin Adel	The Role of Partner Psychiatric History in Infant Stress Regulation and Perinatal Depressive and Anxiety Symptoms
208	CS	Aneri Kothari	Postpartum depression: The timing and tailoring of inpatient maternal mental health counseling on a postnatal unit as filmed prior to hospital discharge
209	CS	Hayley Giordano	Characterizing Interprofessional Collaboration During Inpatient Postnatal Care: Identifying Context and Areas for Future Research
210	CS	Addison Oliver	Novel Morcellation Device and Technique for Laparoscopic Uterine Procedures
211	CS	Priya Vasani	Goal-Directed Fluid Therapy Improves Hospital Length of Stay and Postoperative Outcomes in Pediatric Colorectal Surgery Patients
212	CS	Anu Pallavi Chaparala	Effect of Team Sports on Social Communication and Behavior in Children with Autism
213	CS	Stefani Aleman	Estimating U.S. Prevalence and Costs of Non-esophageal Eosinophilic Gastrointestinal Diseases in a Nationally Representative Sample
214	CS	Jennifer Potts	Assessing Hyperkeratotic Lesions in Pemphigus: A Retrospective Cohort Study
215	CS	Cassey Cha	Characteristics and preferences of patients with alcohol-associated liver disease referred for integrated hepatology and substance use care
216	CS	Victoria Fonseca	The Efficacy of a Novel Surgical Approach for the treatment of Eagle syndrome
217	CS	Hannah Black	A Midline-Sparing Approach for En Bloc Resection of a Ventral Cauda Equina Schwannoma: A 2-Dimensional Operative Video
218	CS	Matthew Lucas Regan	Improving Pneumonia Vaccine Coverage Rates at Wilmington Health
219	CS	Andrew Huffman	Differences in the perceived inefficiencies in perioperative blood product preparation between anesthesiologists and blood bank personnel

220	CS	Benjamin McLean	Evaluating the Diagnostic Utility of a Deep Learning Splicing Model Through a Cohort of Fetuses with Congenital Brain Abnormalities
221	CS	Christophe Courtine	Assessing the Prevalence of Primary Ciliary Dyskinesia Among Patients with Idiopathic Bronchiectasis Seen in an Adult Bronchiectasis Clinic
222	CS	Morgan McCain	Racial Disparities in Unplanned Admissions Post-Ambulatory Surgery
223	CS	Jonathan Ross Davis	Utility of Personalized Reference Values for Measuring Recovery in ACL Reconstruction Patients
224	CS	Chandler Quinn Kotseos	Investigating Ultrasound Elastography Applicability in the Assessment of Exercise-Induced Musculoskeletal Effects for the Common Extensor Tendon
225	CS	Layan Shahrour	Narrative Analysis of Hematopoietic Stem Cell Transplant Patients' Pre-transplant Written Narratives
226	CS	Joshua Morningstar	Increased Rates of Postoperative Complication Following Tibiotalocalcaneal Arthrodesis with Concomitant Fibular Osteotomy
227	CS	Matt Wang	Attitudes Related to Use of POCUS for Frailty Assessments
228	CS	Emma Myers	Multiple Pilar Cysts and Atypical Proliferating Pilar Tumors: A Critical Distinction of Syndromic Presentation from Cutaneous Squamous Cell Carcinoma
229	CS	Elizabeth Morton	Professional Caregiver Satisfaction and Burnout in Assisted Living
301	CS	Joanmarie Lewandowski	Addressing Barriers for Attending Well-Child Visits Through Quality Improvement
302	CS	Shi (Lily) Chen	Initial Experience of DT-CMR with Ultra-High-Performance Gradient Scanner in Patients with Hypertrophic Cardiomyopathy
303	CS	Mili Dave	Optimal Dose of Outpatient Cardiac Rehabilitation by Service Type: A Narrative Review
304	CS	Rebecca Schopfer	Hemophagocytic Lymphohistiocytosis after Left Ventricular Assist Device Placement in an Adult Patient
305	CS	Camara Angelique Wooten	Comparative Analysis of Postoperative Pain Management Strategies in Pediatric Cerebral Palsy Patients Undergoing Single-Event Multilevel Surgeries: Impact of Hip Procedures and Epidural Analgesia
306	CS	Gabrielle Adams	Impact of Tranexamic Acid on Outcomes in Head and Neck Free Flap Surgery: A Retrospective Cohort Analysis
307	CS	Nicole Judith Buddenbaum	Surgical Outcomes of Scrotal Hernia Repairs: High-Risk, High-Reward?

308	CS	Priya Vadlamudi	International Relapsed/Refractory (R/R) Pre-B Acute Lymphoblastic Leukemia (ALL) Patients & Their Journey to Receiving Chimeric Antigen Receptor (CAR) T-cell Therapy
309	CS	Carter Bell	Association of Red Blood Cell Transfusion During Coronary Artery Bypass Graft Surgery with Cardiopulmonary Bypass and Adverse Outcomes
310	CS	Collin Simpson	Improving Mental Health Screening and Review Among Rural Adult Patients at UNC Internal Medicine Goldsboro
311	CS	Nicolas Pirozzi	Evaluation of the Development of De Novo Barrett's Esophagus Post-Sleeve Gastrectomy
312	CS	Meredith Hamby	Determining the Reason for Revision Surgery After Undergoing Transverse Cordotomy with Anteromedial Arytenoidectomy and its Outcomes
313	CS	Makayla Matthews	Chemoradiation Treatment Response Evaluation Using NI-RADS (PET/CT) and ctHPVDNA for HPV-Associated Oropharyngeal Squamous Cell Carcinoma
314	CS	Timothy Gee	Endoscopic response to topical steroids as measured by the eosinophilic esophagitis endoscopic reference score is associated with a need for fewer future esophageal dilations
315	CS	Bharath Rao Biyyala	Determining the Optimal Age Cutoff to Investigate for Cardiac Sarcoidosis in Patients with Complete Heart Block
316	CS	Emma Lopes	Assessment of Attitudes Towards Deprescribing in Older Adults Presenting in the Emergency Department
317	CS	Madi Brna	Identifying Menstrual Dysfunction in Adolescent Athletes: Whats Body Fat Got to do with That?
318	CS	Ashlyn Gentry	Investigating the Role of CYP2C19 Screening Assay and PRU Results in Clinical Outcomes for Intracranial Flow Diverter Insertion
319	CS	Katherine Poulos	Supporting decision-making for patients with clinical T1 renal masses: communication needs and preferences
320	CS	Nandan Patel	Evaluating the Effect of Sleep Disturbances on Pain Recovery in Older Emergency Department Patients with Musculoskeletal Pain
321	CS	Sabrina Chan	Beyond Postpartum Blues: Psychobiological Factors Associated with Childbirth-Related PTSD
322	CS	Lindsay Macchio	Feasibility and Potential Efficacy of an Intervention to Reduce Posttraumatic Stress Among ED Patients at High Risk
323	CS	Madison Dunk	The Social Determinants of Health Bundle: A quality improvement project enhancing SUD screening workflow at UNC IMC Eastowne

324	CS	Grace Fuller	Opioid and Sedative Use in Extremely Preterm Infants Receiving Mechanical Ventilation
325	CS	Christina Stylianou	Two Cases of Cosmetic Silicone Injections and a Review of the Literature
326	CS	Andy Liu	Establishing Family Physicians as Abdominal Aortic Aneurysm Screeners: Evolution of a Pilot Study
327	CS	Océane Mauffrey	Beyond the Brace: a Survey Analysis of the Social Factors Influencing Brace Adherence in Clubfoot Patients
328	CS	Aaron Williams	Outcomes of PSMA-PET Guided radiotherapy for oligorecurrent and oligoprogressive prostate cancer.
329	CS	Moussa Shahoud	Barriers to PAD Care
401	CS	Nicole DiDonna	Challenges in Radial Forearm Free Flap Surgery: A Comprehensive Case Analysis of Septic Complications at the Donor Site
402	CS	John Kyle Mitchell	Evaluating the Bioinductive Patch as a Standalone Treatment for Partial Rotator Cuff Repairs
403	CS	Michael Rowe	Comparing Train-of-Four recovery in the Adductor Pollicis versus the Adductor Digiti Minimi in Elective Surgery patients
404	CS	Ryan Sappington	Evaluation of the Listed Cause of Sudden Death Amongst Working Age Adults Using Death Certificates
405	CS	Sophia Hurr	Use of sodium-glucose transport protein 2 inhibitors and dipeptidyl peptidase 4 inhibitors in patients with MASLD in a real-world setting is associated with lower all-cause mortality
406	CS	Nina Westcott	Assessment of Associations with Chronic Rhinosinusitis and Lifetime Inhalational Exposure
407	CS	Gerber Irance Abrego Lopez	Arrhythmogenic Mitral Valve Prolapse Unrelated to Accelerated Electrocardiographic Aging
408	CS	Trinity Morrow	Classification of Anterior Cruciate Ligament Reconstruction Patients Using Machine Learning
409	CS	Bradley Lauck	Comparison of Outpatient vs Inpatient Aseptic Lower Extremity Nonunion Surgery
410	CS	William Davis Inabnit III	The RANK-RANKL Axis and its Pharmacologic Inhibition by Denosumab in Patients with Metastatic Melanoma that are Treated with PD-1 Inhibitors
411	CS	Jeevun Kansupada	Improving Pathways of Care Following ED Discharge for Renal Colic
412	CS	Jocelyn "J" Hunt	Atypical manifestation of leiomyoma: A tumor in an uncommon location

413	CS	David Gaston Sanders	Contrast-Induced Encephalopathy: A Rare Complication of Angiography in a patient on dialysis
414	CS	Alan Nunez	Relationship Between Neighborhood Disadvantage, Hepatic Steatosis, and Postoperative Outcomes
416	CS	Anna Caffrey-Bottoms	Increasing Cervical Cancer Screening Rates Using the “Daily Huddle”
417	CS	Erik Rundquist	Effect of Arterial Lines on Vasopressor Titration During Critical Care Transport: An Observational Study
418	CS	Hyoungjun Sim	Understanding Constipation as a Geriatric Syndrome
419	CS	Brandon Lee	Patient Specific Implants in Spine Surgery
420	CS	Andrew Kozlow	Worsening Staff Perceptions: AHRQ SOPS Trends in Surgical Departments (2011-2022)
421	CS	Sara Jacob	Evaluating a Pilot Intervention Aimed at Improving Glycemic Control Among Children with Insulin-Dependent Diabetes in a Medicaid Program
422	CS	Isibel B. Caraballo	Navigating Barriers: Exploring the Experiences of Limited English Proficiency Patients Presenting to a Children’s Advocacy Center
423	CS	Parsa Pazooki	Short- and Long-Term Outcomes Among Older Adults Undergoing Atherectomy During Peripheral Vascular Interventions: Insights from the VQI
424	CS	Jimmy Tabet	Predicting Response to Chemotherapy in Colorectal Cancer Using a Clinical-Genomic Machine Learning Model
425	CS	Zane Kaiser	Outcomes of Endoscopic Airway Surgery for Patients with Subglottic Stenosis: A Peak Flow Meter Analysis
426	CS	Isabel Rodriguez	Engaging the Latinx Community: Developing a Culturally Congruent Intervention for Eating Disorders in Pediatric Primary Care
427	CS	Shaian Lashani	A Novel Theory-Based Virtual Reality Training to Improve Patient Safety Culture in the Department of Surgery of a Large Academic Medical Center: Insights into Behavioral Changes
428	CS	Ashley Ruhashya	A Systematic Review of Cardioversion for Maternal Tachyarrhythmia in Pregnancy
429	CS	Alexandra Weir	High Eosinophilic Gastrointestinal Disorder Prevalence in Patients with Atopic Disease
501	PH	Gabrielle Cooper	Eating disorders and later risk of cancer – A nationwide longitudinal study in Denmark

502	PH	Amy Lo	Did a Produce Prescription Program for low-income patients in North Carolina shift Food Purchases and Nutritional Outcomes?
503	PH	Annie Chen	Exploring the Relationship Between Racial Microaggressions and Substance Use in Asian Americans
504	PH	Numair Attaar	Obesity, Cancer and Inflammation: A Patient's Guide
505	PH	Rayad B. Shams	Identifying Key Drivers of Dermatology Appointment Non-attendance in Hidradenitis Suppurativa Patients
506	PH	Tanvi Saran	FIT Connect Program: Description of Services, Helpful Aspects, Suggestions, and Takeaways from Clients and Staff
507	PH	Morgan Johnson	Impact of Legislation on Abortion Access in North Carolina
508	PH	Allison Naudé	Mother Blame in PFAS Research With Relation to Reproductive Health
509	PH	John Leland	Three lessons for rural health care systems from COVID-19
510	PH	Dalton Craven	Everyday Discrimination and Vulnerability to HIV Transmission among Sexual and Gender Minorities of Color in Raleigh-Durham, North Carolina
511	PH	Allison Pittman	Stimulant Use Among Migrant and Seasonal Agricultural Workers in Eastern North Carolina
512	PH	Anna Ilyasova	Use of Presumptive Recommendations and Other Strategies to Encourage HPV Vaccine Uptake: Results from a National Survey of Primary Care Professionals
513	PH	Shannon Parness	The Association of Unhealthy Alcohol Use and Sudden Death Among Working Age Adults in a US County
514	PH	Julie Hwang	Bridging the Gap: Exploring Caregiver Perceptions of Barriers and Facilitators in Task-Shifted Teacher-Delivered Mental Health Care in Darjeeling, India
515	PH	Jennie Park	Vitamin D and Calcium Supplementation Recommendations in Clinical Practice Guidelines for Primary Prevention of Postmenopausal Osteoporosis: Umbrella Review
516	PH	Jordan Besh	Past Healthcare System Interaction and Resuscitation Attempts by EMS in Sudden Death Victims
517	PH	Esther Lee	Environmental drivers of tick prevalence and tick-borne diseases in central North Carolina.
518	PH	Rayna Haque	Impact of Socio-Demographics, Personal Experiences, and Barriers to Care on COVID-19 Vaccination Hesitancy in Massachusetts
519	PH	Victoria Lam	Addressing human mobility as the main barrier to malaria elimination in Zanzibar, Tanzania

520	PH	Samantha Kim Thomas	The Importance of Sports Bra Access and Fit on Physical Activity among High School Girls in North Carolina
521	PH	Pierina Parraga	Assessing Longitudinal Kidney Function, Body Mass Index, and Hypertension Among Adolescents and Young Adults with Chronic Health Conditions
601	BS	Jasmine Kimber	Advancement in Imaging Science Using a Multimodality Bone Edema Phantom Model for Validation and Technology Development
602	BS	Parthena Kotsalidis	Genome-wide CRISPR screen to identify novel regulators of osteocyte maturation and dendrite formation
603	BS	Tej Verma	Nanoparticle Retinoid Delivery: A Novel Functional Method for Inducing Cytotoxicity in Cancer
604	BS	Emily Gascoigne	Accelerated epigenetic clock aging in peripheral blood is associated with preterm birth (PTB)
605	BS	Emily Kounlavong	Deciphering the Role of Cancer Associated Fibroblast Mediated Bladder Cancer Progression
606	BS	Jack Felkner	Isolation of Murine Chondrocytes for Cell Sorting and Single Cell RNA Sequencing after Tissue Fixation to Preserve Transcriptome Fidelity
607	BS	Morgan McCain	Developing a planar, air-liquid interface cell culture model of tonsil epithelium
608	BS	Ishani Deliwala	Activation of Sirtuin 6 (SIRT6) Enhances DNA Damage Repair in Primary Human Chondrocytes
609	BS	Kate Hickson	Immunophenotyping of Synovial Tissue in Adolescents Undergoing ACL Reconstruction: What Role for Synovial Inflammation in Arthrofibrosis?
610	BS	jane brown	The Role of NF- κ B Activity in HPV-Associated Head and Neck Cancer
611	BS	Khalid Tunau- Spencer	The Effect of Hydrogen Sulfide on Virulence of Clinically-Derived Adherent-Invasive E. coli
612	BS	Marcus Donnelly	Accuracy of observer-gathered data on newborn resuscitations in a clinical trial in the Democratic Republic of Congo
613	BS	Raymond Kim	Assessing Molecular Differences Between High Grade and Low Grade IDH Mutant Gliomas to Evaluate Resistance to Ferroptosis
614	BS	Sachi Shinde	Tunable resistive pulse sensing for isolation of Extracellular Vesicles in Human Plasma
615	BS	Hannah Phelps	Stereological Quantification of the Impact of Aging on Dopaminergic and Cholinergic Neurons
616	BS	Sanjana Srinivasan	Exosome complex components 1 and 2 are vital for early mammalian development

617	BS	Abel Andre Miranda Buzetta	Paper-Based Coculture Platform to Evaluate the Effects of Fibroblasts on Estrogen Signaling in ER+ Breast Cancers
618	BS	Alecia Rajesh	Activation of Articular Chondrocytes by Inflammatory Factors Released by Osteoarthritic Synovial Fibroblasts
619	BS	Shreeya Garg	Varied susceptibility to proteasome inhibitors and associations with genetic polymorphisms in Plasmodium falciparum isolates from Uganda
620	BS	John Post	Molecular Characterization of Sacituzumab Govitecan Response in Breast Cancer Cells
621	BS	Assem Patel	Protease-activated receptor 4 (PAR4) dependent extracellular vesicle generation has a protective role in Coxsackievirus B3 (CVB3) myocarditis
622	BS	Ahlina Archibald	Novel function of the secreted ribonuclease 1 in intracellular mRNA decay



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