

44TH ANNUAL ST. ALBERT'S DAY



Saint Albertus Magnus was also known as Albert the Great. Saint Albert the Great, Albert of Cologne, a Albert of Saxony, Dominican theologian and philosopher best known as a teacher of St. Thomas Aquinas and a proponent of Aristotelianism at the University of Paris. He established the study of natural history and agriculture within the Dominican tradition. In 1262, he was declared the patron saint of all who cultivate the natural sciences. He was the most prolific writer of his century and was the only scholar of his age to be called "the Great"; this title was used even before his death.

He was among the first and greatest of the natural scientists, gaining a reputation for expertise in biology, chemistry, physics, astronomy, geometry, metaphysics, and mathematics. His life and writings exemplified the importance of experimentation and investigation.

Each year, St. Albert's Day celebrates Saint Albert's gift to humanity by advancing research and the sharing of scientific knowledge with others.





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He was among the first and greatest of the natural scientists, bringing reputation for expertise in biology, chemistry, physics, astronomy, geography, metaphysics, and mathematics. His life and writings emphasized the importance of experimentation and investigation.

LOYOLA annual St. Albert's Day celebrates Saint Albert's gift of continuing research and the sharing of scientific knowledge with others.





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Loyola's annual St. Albert's Day embodies Saint Albert's spirit by celebrating research and the sharing of scientific knowledge with others.







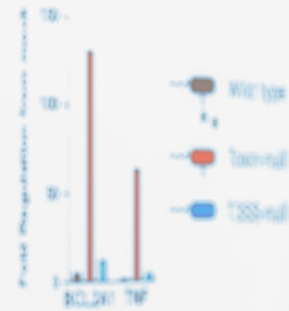
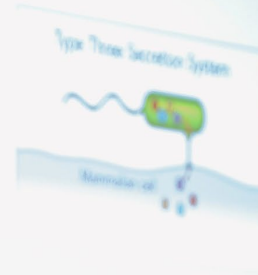




LOVOLA UNIVERSITY CHICAGO
2024 Junior Scientist of the Year
Presented to
ABBY R. KROKEN, Ph.D.
Department of Microbiology
In Grateful Recognition of Your Dedicated Service to Research and Education
By Lovola University Chicago Strick School of Medicine

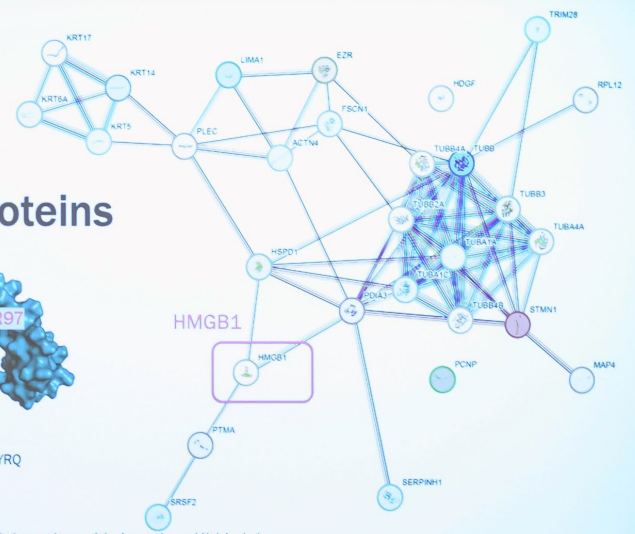
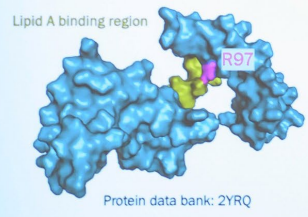
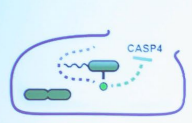
Do corneal epithelial cells respond to *P. aeruginosa*?

- Small RT-PCR panel of HeLa cells exposed to bacteria and mutants
- Original question: Do Type Three-secreted toxins diminish the host response?





32 shared proteins



Adam Thota, MS, Unpublished – Collaboration with Jonathan Kirk's lab









LOYOLA
UNIVERSITY
CHICAGO

**2024 Senior Scientist
of the Year**

Presented to
JONATHAN A. KIRK, Ph.D.

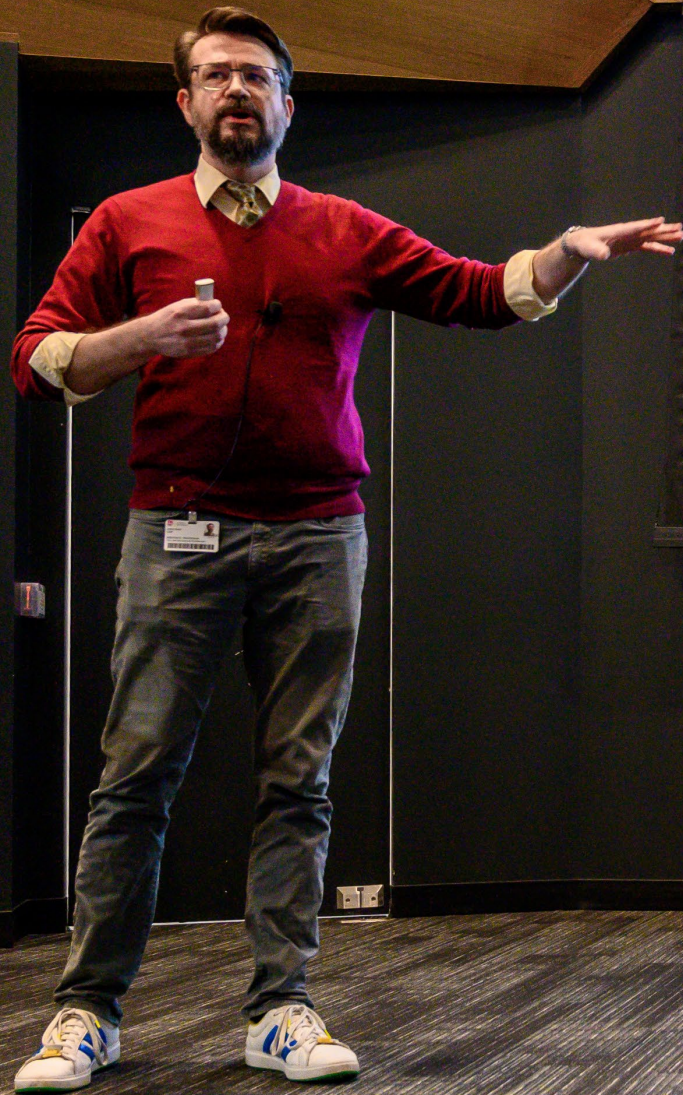
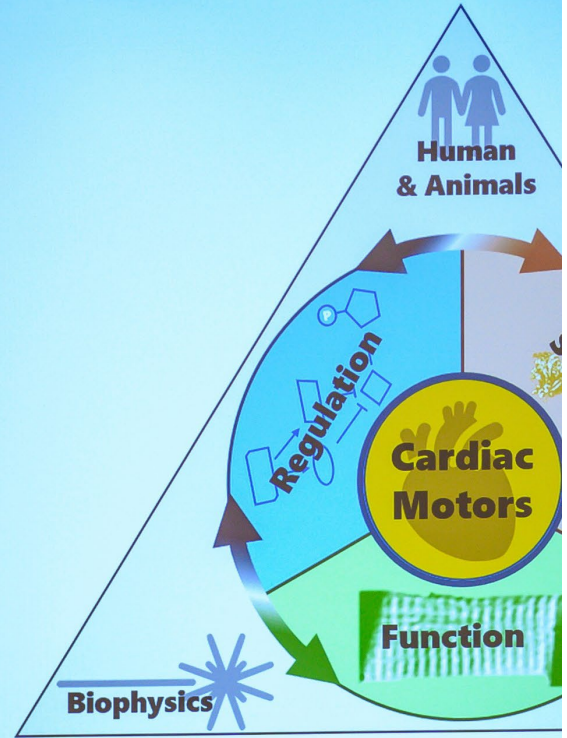
Department of
Cell and Molecular Physiology

*In Grateful Recognition of Your Dedicated
Service to Research and Education*

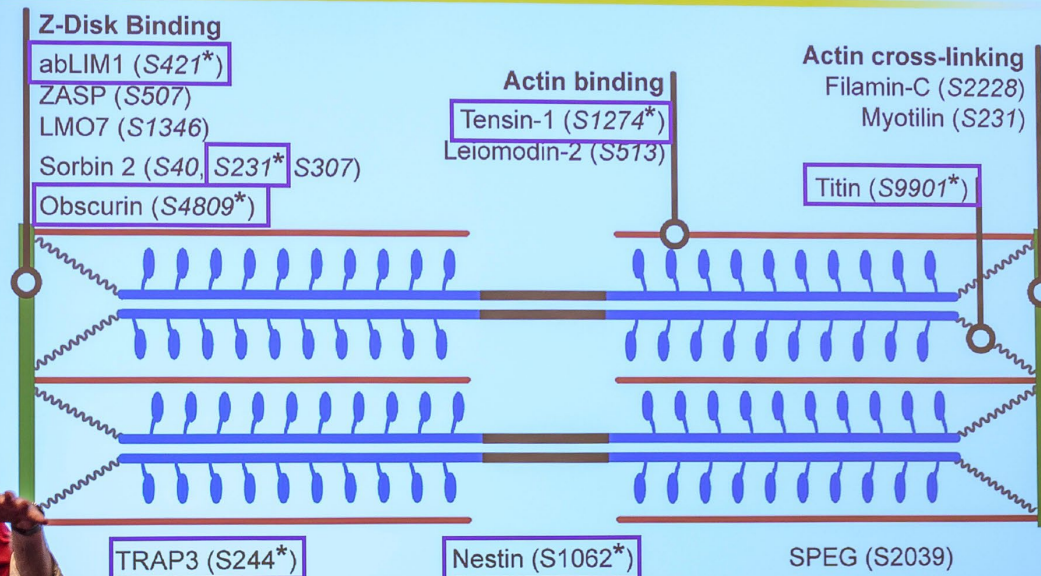
By
Loyola University Chicago
Stritch School of Medicine

LOYOLA UNIVERSITY CHICAGO
STRITCH SCHOOL OF MEDICINE
JONATHAN A. KIRK, Ph.D.
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Altered Phosphorylation in Heart Failure



Predicted Targets of the kinase GSK-3 β



The Utility of Using Fibrozyt Meningeal-Exophysis PCR Plus MRI in Children Aged with Meningitis and Encephalitis of LUMC: A 14-Year Retrospective Study

Background: We evaluated the utility of using Fibrozyt Meningeal-Exophysis PCR Plus MRI in Children Aged with Meningitis and Encephalitis of LUMC: A 14-Year Retrospective Study.

Methods: We reviewed electronic records of patients aged 5-14 years between 2004 and 2018.

Results: We identified 147 patients with meningitis and encephalitis. The utility of using Fibrozyt Meningeal-Exophysis PCR Plus MRI was evaluated in 100 patients.

Parameter	Value
Number of patients	147
Number of patients with meningitis	100
Number of patients with encephalitis	47
Number of patients with both	10



The Impact of Social Determinants of Health on Postoperative Outcomes Following Arthroscopic Bankart Repair

Background: The purpose of this study was to investigate the impact of social determinants of health (SDOH) on postoperative outcomes following arthroscopic Bankart repair.

Methods: We conducted a retrospective cohort study of 300 patients who underwent arthroscopic Bankart repair between 2010 and 2018.

Results: The mean age of patients was 29.8 ± 14.6 years. 116 (38.7%) patients had commercial insurance, and 246 (81.3%) of patients were white.

Conclusions: SDOH, particularly insurance status and race, significantly impacted postoperative outcomes. Further research is necessary to gain a better understanding of the impact that SDOHs have on outcomes following arthroscopic Bankart repair.

Table 1: Postoperative Outcomes by Insurance Status

Insurance Status	Number of Patients	Mean Age (years)	Female (%)	White (%)	OR of 1.80 (95% CI 1.12-2.91)
Commercial	116	29.8	38.7	81.3	1.80 (95% CI 1.12-2.91)
Non-commercial	184	29.8	38.7	81.3	1.80 (95% CI 1.12-2.91)

Table 2: Postoperative Outcomes by Race

Race	Number of Patients	Mean Age (years)	Female (%)	White (%)	OR of 1.80 (95% CI 1.12-2.91)
White	246	29.8	38.7	81.3	1.80 (95% CI 1.12-2.91)
Other	54	29.8	38.7	81.3	1.80 (95% CI 1.12-2.91)

Table 3: Postoperative Outcomes by Insurance and Race

Insurance Status	Race	Number of Patients	Mean Age (years)	Female (%)	White (%)	OR of 1.80 (95% CI 1.12-2.91)
Commercial	White	100	29.8	38.7	81.3	1.80 (95% CI 1.12-2.91)
Commercial	Other	16	29.8	38.7	81.3	1.80 (95% CI 1.12-2.91)
Non-commercial	White	146	29.8	38.7	81.3	1.80 (95% CI 1.12-2.91)
Non-commercial	Other	38	29.8	38.7	81.3	1.80 (95% CI 1.12-2.91)

References:

- Wang, M., et al. (2018). Social Determinants of Health and Postoperative Outcomes. *Journal of Orthopaedic Surgery and Sports Medicine*, 23(4), 1234-1245.
- Smith, J., et al. (2017). The Impact of Insurance Status on Postoperative Outcomes. *Orthopaedic Journal of Sports Medicine*, 5(3), 234-245.
- Johnson, K., et al. (2016). Race and Postoperative Outcomes in Arthroscopic Bankart Repair. *Arthroscopy: The Journal of Arthroscopic and Open Surgery*, 32(10), 2345-2356.

Dislocation Rate in Patients Undergoing Debridement, Antibiotics, Irrigation, and Retention for Acute Periprosthetic Joint Infection

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 Department of Orthopedic Surgery and Rehabilitation, Loyola University Medical Center, Loyola Stritch School of Medicine

Introduction

Total hip replacement improves function and alleviates pain from osteoarthritis. However, periprosthetic joint infection (PJI) is a severe complication that arises in approximately 2% of patients and is associated with increased healthcare costs and worse outcomes [1,2]. This is critical to understand and utilize treatment that is indicated to reduce long-term without compromising stability of the implant.

Debridement, antibiotics, irrigation, and retention (DAIR) is a common method for treating PJI. It involves removing contaminated tissue, flushing the joint with sterile solution, and leaving antibiotics to combat infection. DAIR may involve the use of modular components to enhance stability and reduce the risk of future complications. Research indicates that DAIR may result in lower morbidity and mortality compared to two-stage revision. The other widely used treatment for PJI of the hip is two-stage revision. However, DAIR dislocation rates are limited, and no known risks associated with revision surgeries [4].

We studied how dislocation rates following DAIR for PJI of total hip arthroplasty, reporting a range of rates between 9% to 19% [5,6].

Objectives

- PRIMARY AIM**
 → To determine the rate of dislocation after debridement, antibiotics, irrigation, and retention for periprosthetic joint infection in total hip arthroplasty
- SECONDARY AIM**
 → To identify risk factors for dislocation following DAIR

Methods

A retrospective chart review identified patients treated with DAIR after infection of a primary or revision total hip arthroplasty over a 20-year period with a minimum 1-year follow-up. After identifying patients that met the inclusion criteria, post-DAIR dislocations were recorded, along with demographic data, comorbidities, surgical approach, history of dislocation, number of post-DAIR dislocations, and any necessary follow-up surgical procedures related to the dislocation. Data was analyzed using a regression model to evaluate the dislocation rate after DAIR and significant risk factors associated with dislocation.

Conclusion

The dislocation rate after DAIR for hip PJI was 7.4%, lower than the up to 19.9% reported in similar studies [5]. This supports DAIR as an effective and cost-efficient treatment for periprosthetic joint infections after total hip arthroplasty. Previous dislocation appears to have an association with post-DAIR dislocation, highlighting the need for physicians to consider patient history when deciding on a treatment option. Modular component exchange appeared to increase the risk of post-DAIR dislocation which contradicts existing studies that have found that modular component exchange stabilizes the joint and prevents future complications [5,7]. Due to the small cohort and limited published research on the topic, these results emphasize the importance of gathering more data on DAIR outcomes to better analyze dislocation risk factors and prevent adverse outcomes.

References

1. Amis, E. L. D., Mamon, A., & Todd, J. R. (2024). Periprosthetic Joint Infection. *Indian J Orthop*, 58(4), 405-415.
2. Morsink, M., Lyons, J., Perrin, J., Frowde, A., Kishanmurti, A. B. A review of current practices in periprosthetic joint infection debridement and revision arthroplasty. *Arthroscopy*, 2022 Sep; 14(11):31-40.
3. Frowde, A., Perry, D., Kishanmurti, A. B., Morsink, M., & Frowde, A. (2024). Periprosthetic joint infection debridement and revision arthroplasty. *Arthroscopy*, 2022 Sep; 14(11):31-40.
4. Singer, R. C., & Singer, R. C. (2013). The importance of patient history when deciding on a treatment option. *Modular component exchange appeared to increase the risk of post-DAIR dislocation which contradicts existing studies that have found that modular component exchange stabilizes the joint and prevents future complications [5,7].*
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Results

Overall dislocation rate of 7.4% was observed, with 95% CI 5.8-9.5. The 95% CI interval for the total population range from 9.5% to 19.9%.

ASSOCIATION OF PATIENT CHARACTERISTICS WITH DISLOCATION RATE

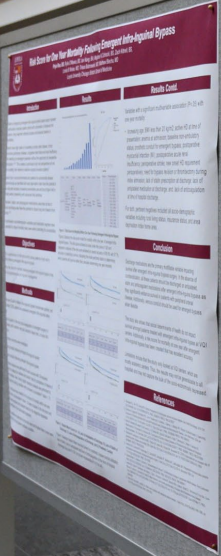
As shown in Table 1, there appears to be some association between previous dislocation and subsequent dislocation following DAIR. There is an estimated increase of 0.02 in the risk of dislocation following DAIR if a patient has a previous dislocation (OR=1.02, 95% CI: 0.96, 0.95; P=0.06).

MODULAR COMPONENT EXCHANGE

The odds of subsequent dislocation were estimated to be 1.02 times higher among patients who underwent any modification of the modular component compared to those who

Variable	Post-DAIR Hip Dislocation (n/%)	No Post-DAIR Hip Dislocation (n/%)	OR (95% CI)*	P*
Age at DAIR, mean (SD)	63.0 (10.6)	64.2 (12.0)		
Female sex, n (%)	7 (53.8)	81 (49.7)		
Race				
White	12 (92.3)	139 (85.3)		
Hispanic or Latino	1 (7.7)	15 (9.2)		
Other	0	6 (3.7)		
Unknown	0	0		
Diabetes, n (%)	0	0		
Smell, mean (SD)	4.0 (0.8)	4.1 (0.8)		
Smoker	12 (92.3)	121 (73.6)		
Yes	12 (92.3)	121 (73.6)	1.25 (0.37, 4.27)	0.72
Never	0	0	1.02 (0.95, 1.09)	0.57
Alcohol abuse, n (%)	0	0		
Previous Dislocation, n (%)	1 (7.7)	49 (28.5)	0.96 (0.11, 7.97)	0.49
No	12 (92.3)	144 (85.3)	1.02 (0.24, 4.26)	0.68
Yes	1 (7.7)	7 (4.2)	2.61 (0.42, 16.97)	0.29
American history, n (%)	1 (7.7)	36 (22.1)		
Total	31 (19.9)	162 (96.5)	1.02 (0.96, 0.98)	0.06

Table 1. Patient Demographic, Comorbidity, and Procedure Characteristics



250

THE HENRY A. HARTMAN, MD '30 ATRIUM

dePorres Community

Oster Community



Path to Bariatric Surgery: Physician vs Self-Referrals

Casey M. Brannan, BS, Andrew J. Patten, BS, Aronson M. Kuperman, MD, William Koenig, BS, Aron Patel, MD, Enad Altam, MD
Loyola University Medical Center, Department of Radiology

Introduction
The bariatric surgery and medical (BOSM) program at Loyola University Medical Center (LUMC) is a multidisciplinary program that provides comprehensive care for obese patients. The program includes a bariatric surgery program, a medical weight management program, and a behavioral weight management program. The program is designed to provide comprehensive care for obese patients, including medical, surgical, and behavioral interventions.

Methods
We conducted a retrospective analysis of all patients who underwent bariatric surgery at LUMC from 2010 to 2015. We compared the number of physician referrals versus self-referrals to the bariatric surgery program. We also compared the number of physician referrals versus self-referrals to the medical weight management program and the behavioral weight management program.

Results
The number of physician referrals to the bariatric surgery program increased significantly over the study period. The number of self-referrals to the bariatric surgery program also increased significantly over the study period. The number of physician referrals to the medical weight management program and the behavioral weight management program also increased significantly over the study period.

Conclusion
The number of physician referrals to the bariatric surgery program, the medical weight management program, and the behavioral weight management program all increased significantly over the study period. This suggests that there is a growing awareness of the benefits of bariatric surgery and weight management programs among physicians and patients.

Evaluating Changes in NOD2 Expression in Brain Tissue in a Rat Model of Traumatic Brain Injury

Casey M. Brannan, BS, Andrew J. Patten, BS, Aronson M. Kuperman, MD, William Koenig, BS, Aron Patel, MD, Enad Altam, MD
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Descriptive Analysis of AAs in Female Populations: A Foundation for Integrating Clinical & Demographic Variables into

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Evaluating Biopsy Yield and Clinical Management Outcomes in Vertebral Discitis/Osteomyelitis Using Pre-procedural MRI and CT Scoring Models

Casey M. Brannan, BS, Andrew J. Patten, BS, Aronson M. Kuperman, MD, William Koenig, BS, Aron Patel, MD, Enad Altam, MD
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THE HENRY A. HARTMAN, MD '30 ATRIUM

The image shows a large atrium filled with scientific posters. The posters are displayed on grey boards, arranged in rows and columns. Each poster has a yellow label with a number, ranging from 176 to 221. The posters contain various scientific information, including text, diagrams, and charts. The atrium has a modern design with wood paneling and glass railings. The name 'THE HENRY A. HARTMAN, MD '30 ATRIUM' is visible on the wall above the posters.

Poster 178: **Brain Injury related**

Poster 191: **Increasing MxCP2 as a therapeutic strategy for CDVLS deficiency disorder**

Poster 190: **CDVLS deficiency disorder**

Poster 189: **Prenatal stress effects on sex differences in recognition memory and synaptic expression of AMPA-type glutamate receptors**

Poster 188: **Evaluating changes in NCC2 expression in brain tissue in a Rat Model of Traumatic Brain Injury**

Poster 204: **Path to Bariatric Surgery: Physician vs Self-Referrals**

Poster 205: **Genetics and the Brain**

Poster 206: **Evaluating Outcomes Through Professional Coding**

Poster 207: **Genomic Downstream in a Leading Variant in Risk Genes for Major Depressive Disorder**

Poster 219: **Genetic Studies of Major Depressive Disorder**

Poster 220: **Genetic Studies of Major Depressive Disorder**

Poster 221: **The Role of Genetic Studies in Major Depressive Disorder**

Poster 222: **Genetic Studies of Major Depressive Disorder**

Poster 223: **Genetic Studies of Major Depressive Disorder**

Poster 224: **Genetic Studies of Major Depressive Disorder**

Poster 225: **Genetic Studies of Major Depressive Disorder**

Poster 226: **Genetic Studies of Major Depressive Disorder**

Poster 227: **Genetic Studies of Major Depressive Disorder**

Poster 228: **Genetic Studies of Major Depressive Disorder**

Poster 229: **Genetic Studies of Major Depressive Disorder**

Poster 230: **Genetic Studies of Major Depressive Disorder**

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The Neuroprotective and Health Benefits of Cinnamon: A Comprehensive Review

Uzma, BSc, MSc, PhD

Introduction	Methods	Conclusion
<p>Cinnamon, a member of the Lauraceae family, has been used for centuries in traditional medicine. This review aims to provide a comprehensive overview of the neuroprotective and health benefits of cinnamon, focusing on its active compounds and their effects on various neurological conditions.</p>	<p>The review was conducted using a systematic search of the literature. The search was performed using the following keywords: "Cinnamon", "Neuroprotective", "Health Benefits", "Cinnamyl", "Cinnamaldehyde", "Cinnanon", "Cinnamyl acetate", "Cinnamyl phenyl ether", "Cinnamyl propyl ether", "Cinnamyl butyl ether", "Cinnamyl pentyl ether", "Cinnamyl hexyl ether", "Cinnamyl heptyl ether", "Cinnamyl octyl ether", "Cinnamyl nonyl ether", "Cinnamyl decyl ether", "Cinnamyl undecyl ether", "Cinnamyl dodecyl ether", "Cinnamyl tridecyl ether", "Cinnamyl tetradecyl ether", "Cinnamyl pentadecyl ether", "Cinnamyl hexadecyl ether", "Cinnamyl heptadecyl ether", "Cinnamyl octadecyl ether", "Cinnamyl nonadecyl ether", "Cinnamyl eicosyl ether".</p>	<p>The review concludes that cinnamon has significant neuroprotective and health benefits. The active compounds in cinnamon, such as cinnamyl, cinnamaldehyde, and cinnanon, have been shown to have antioxidant, anti-inflammatory, and neuroprotective effects. These effects are mediated through various mechanisms, including the inhibition of oxidative stress, the reduction of inflammation, and the protection of neurons from damage. The review also highlights the potential of cinnamon as a natural source of antioxidants and anti-inflammatory agents, which may be useful in the prevention and treatment of various neurological conditions.</p>

Objectives

- To provide a comprehensive overview of the neuroprotective and health benefits of cinnamon.
- To identify the active compounds in cinnamon and their effects on various neurological conditions.
- To explore the potential of cinnamon as a natural source of antioxidants and anti-inflammatory agents.

Results

The review found that cinnamon has significant neuroprotective and health benefits. The active compounds in cinnamon, such as cinnamyl, cinnamaldehyde, and cinnanon, have been shown to have antioxidant, anti-inflammatory, and neuroprotective effects. These effects are mediated through various mechanisms, including the inhibition of oxidative stress, the reduction of inflammation, and the protection of neurons from damage.

References

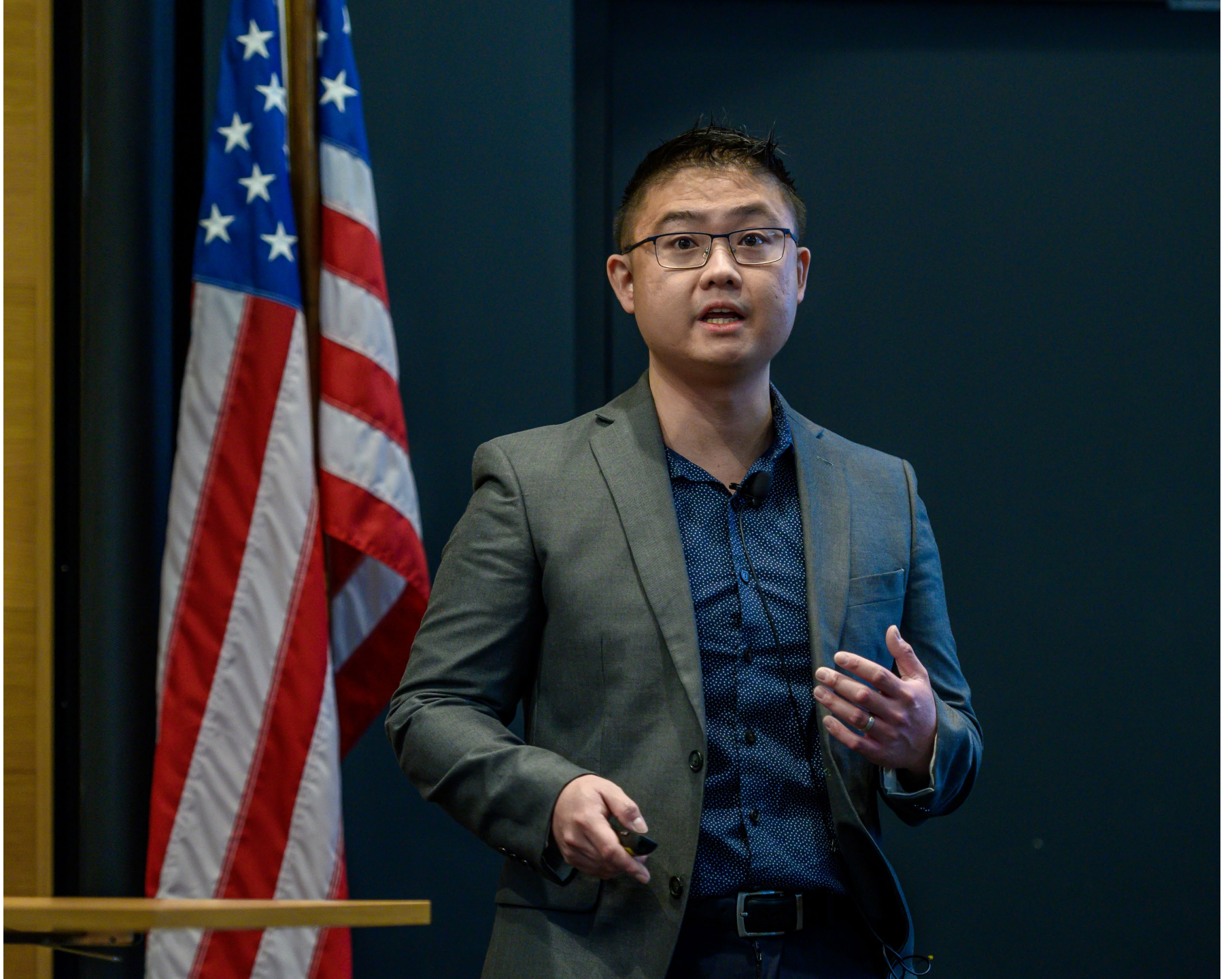
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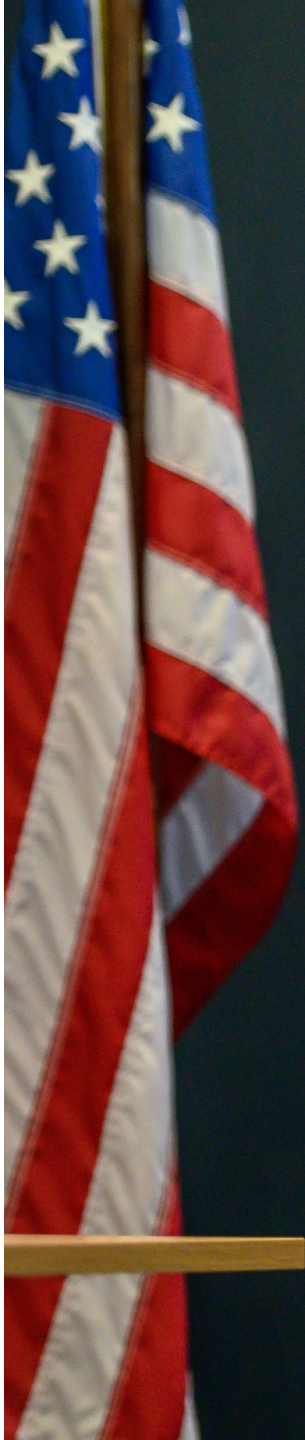
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Ischemic Stroke



- 87% of all strokes are ischemic strokes



ISCHEMIC STROKE

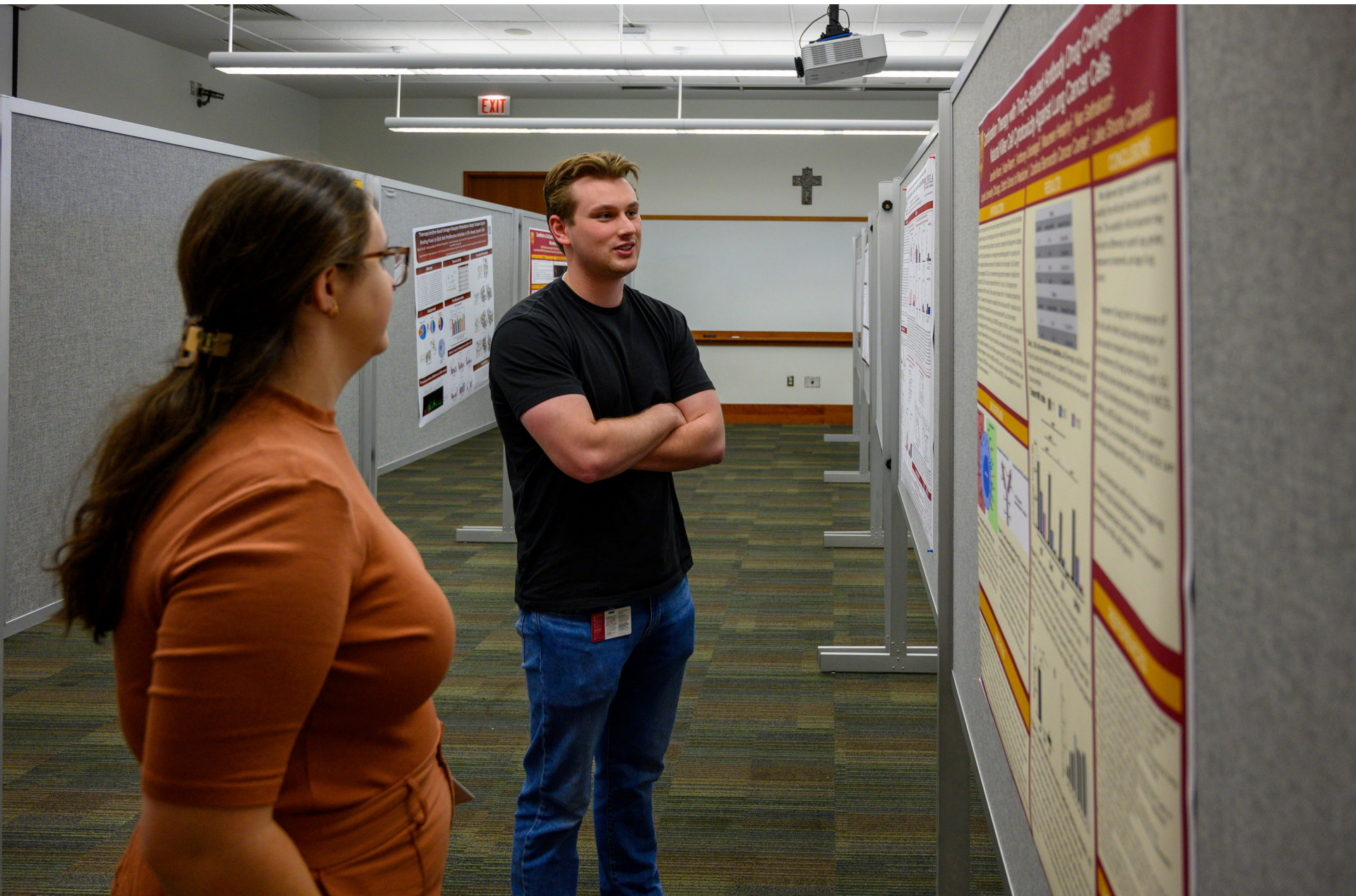
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Therapeutic Drug Combinations: Predicting Therapy with Topoisomerase Inhibitor Drug Combinations
A study to predict the efficacy of drug combinations in cancer treatment.

Predicting Therapy with Topoisomerase Inhibitor Drug Combinations

Abstract: This study aims to predict the efficacy of drug combinations in cancer treatment. We used a machine learning model to predict the IC50 of drug combinations based on the IC50 of individual drugs. The results show that the model can accurately predict the IC50 of drug combinations, which can be used to optimize drug therapy.

Drug	IC50	IC50 Ratio
Drug A	100	1.0
Drug B	200	2.0
Drug C	300	3.0
Drug D	400	4.0
Drug E	500	5.0

RESULTS

The model was trained on a dataset of drug combinations and their IC50 values. The results show that the model can accurately predict the IC50 of drug combinations, which can be used to optimize drug therapy.

CONCLUSION

The model can accurately predict the IC50 of drug combinations, which can be used to optimize drug therapy.