Case Western Reserve University

Cleveland State University

Cuyahoga Community College

Kent State University

Youngstown State University

Present

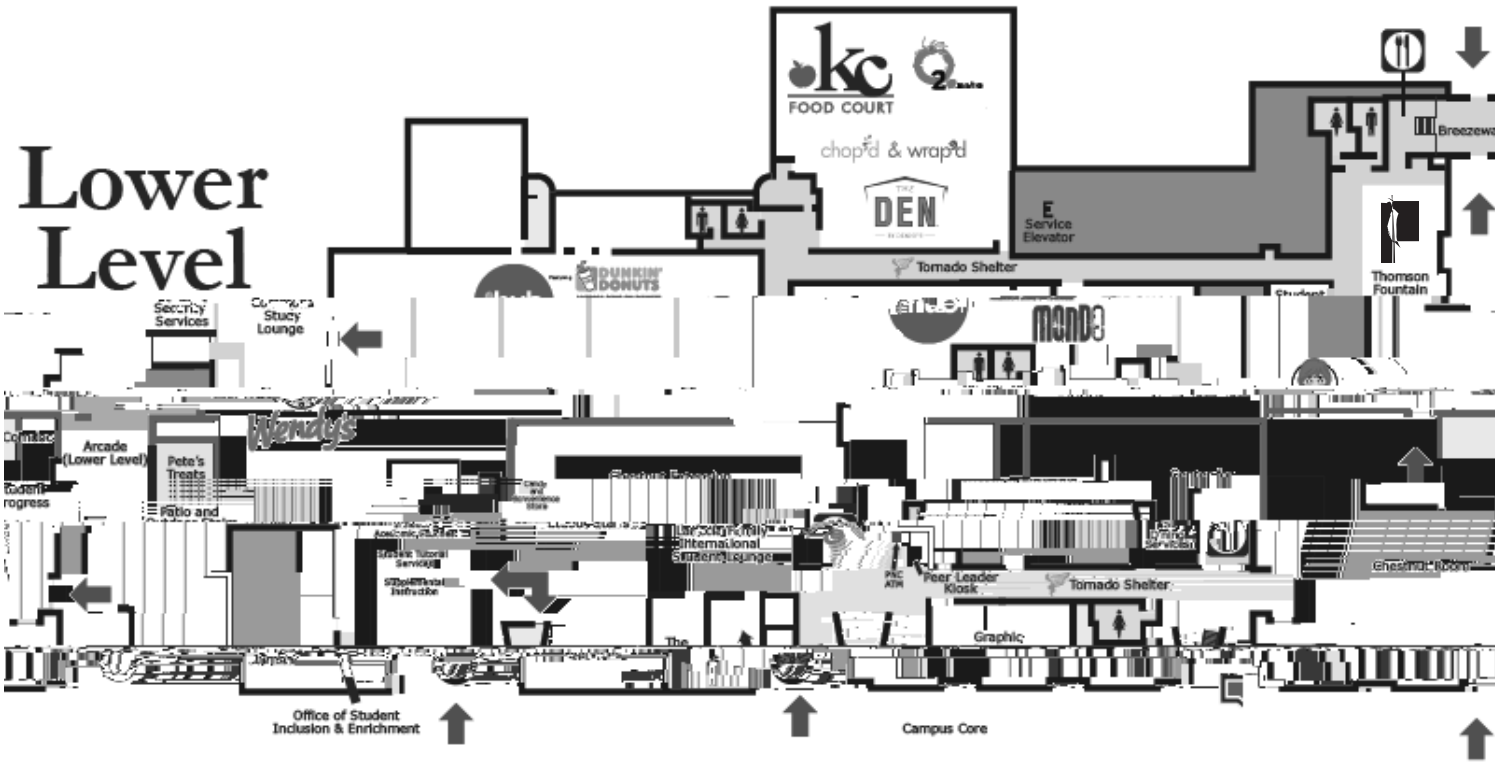
Research Poster Conference

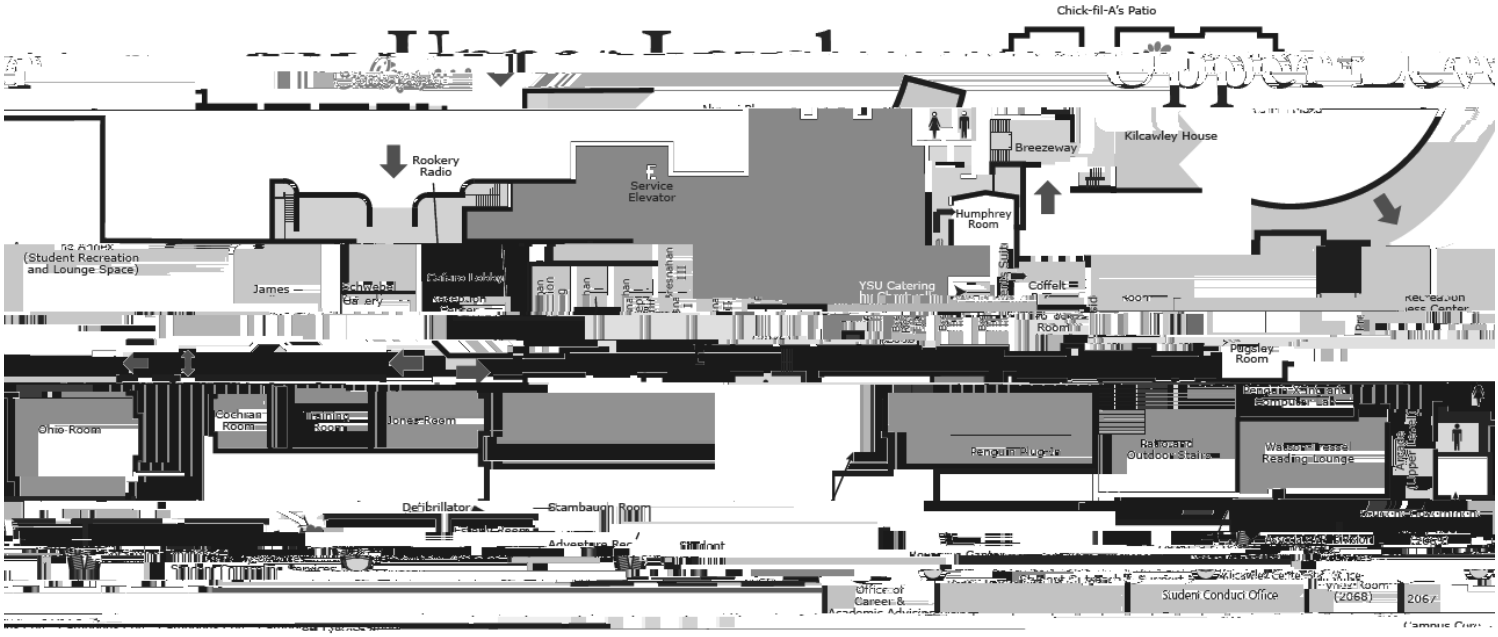
Sunday, April 15, 2018

Youngstown State University

Kilcawley Center

Kilcawley Center Map





POSTER ABSTRACTS
Basic and Medical Sciences

1A Pathogenic mechanism of epilepsy-associated gamma-amino butyric type A receptors

Angela Whittsette, Omar Mahmoud, Omar Sumrain, Nadia
Case Western Reserve University *Tingwei Mu, Mentor*

Recent advances in genetics identified many mutations in gamma-amino butyric type A (GABAA) receptors that are associated with Idiopathic Epilepsy. Such mutations lead to loss of their function on the PM and disrupt neural circuits. We identified mutations that lead to their misfolding and excessive protein degradation in cells and loss of their protein levels , the plasma membrane. We used cellular assays that evaluate protein aggregation and protein levels to find out causes of epilepsy-associated mutant gamma2 subunits. In the experiment we cultured human embryonic kidney cells (HEK293 cells), expressed GABAA receptor variants in HEK293 cells by transfection, performed SDS-PAGE protein electrophoresis, and concluded with a Western blot analysis. We demonstrated that two specific mutations in gamma2 subunits, R177G and G257R, caused excessive misfolding of the mutant subunits.

2B The effects of road salt runoff on seed germination

Dan Londrico, Joshua Ryan
Cleveland State University *Dr. Andrew Resnick, Mentor*

5A Common Iliac Aneurysms

Lauren Satterlee

Cuyahoga Community College *Prof. Bassem Al-Kaimari, Mentor*

A case study on common iliac aneurysms and how they are diagnosed and commonly treated is presented. Aneurysms are a weakening of the walls of an artery that can occur in many different areas of the body. The common iliac arteries are located in the pelvis, bifurcating from the abdominal aorta. Treatment of common iliac aneurysms may include: controlling risk factors; close monitoring; and/or surgical repair/stenting.

6B Improving Paramedic Cardiolog l' C . maw v o ϟ

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resistance genes and an R6Kγ replication origin. The DNA from the mutants was transformed into E. coli. Transformants will contain new plasmids of the transposon flanked by the interrupted genes. DNA sequencing can identify genes involved in oxidative stress response, metal efflux, metal transformation and sequestration.

20B Redheads: Fact vs. Fiction

Renee Justus
Cuyahoga Community College *Vanitha Parameswaran, Mentor*

We all have genetic characteristics that make us different. While redheads only make up 2% of the world population there are many studies that show their differences are more than just cosmetic. From the way they process pain to the acidity of their skin redhead genetics go much farther than just the color of their hair. So how do genes play a role in the redheaded difference. From genetics to myths, redheads have played a unique role in history.

21A Suppressive Transcriptional Regulation on Dendritic Morphology in Drosophila Melanogaster

Ogoegbunam Okolo
Case Western Reserve University

For my project, we investigated micro RNA molecules in order to understand its regulatory effects on cut expression levels and consequent dendritic branch morphology. We hypothesize that there may be mir-RNA-related mechanisms sought to buffer the normal variation in transcription factor levels, to ensure that cells attain a reproducible and class-specific morphology. We utilized Drosophila Melanogaster as a model to examine and manipulate the transgenic expression patterns of two specific classes of micro-RNAs: mir-310 and mir-315 (overexpression & loss of function). Experimental data indicate that overexpression of micro RNA molecules result in a significant decrease in cut expression levels. Additionally, overexpression exhibited suppressive effects on the development of dendritic spikes/protrusions.

22B Restoration and Characterization of a Sub-critical Assembly: A Middle Act

Steven Littell, Joseph Shives, Brandon Sharp, Martin Strong
Youngstown State University d' / m e N

analysis based model to describe this behavior which has been fitted to data from flow chamber experiments on E-selectin/ligand complex adhesion from Wayman et al.[1]. Best fit parameters have further been compared to estimates obtained from protein structural data of similar and near-identical complexes, and shown to agree within highly reasonable limits. With improvements in structural analysis and more research into the effects of mutations at the lectin/ligand interface, this modelling approach can shed great light onto the processes of healing and other biological functions that rely on a triphasic bond lifetime behavior.

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Rachael F Bucey Leopold
Cleveland State University *Colleen C Walsh, Mentor*

Food waste can be described as discarding food that is perfectly safe for human consumption. Effects of food waste include environmental, economic, health, and social factors. Ohioans currently rank 6th nationwide in food insecurity. Businesses and organizations in urban areas are notorious for excessive food waste. Food waste policies cultivated by committees such as the Cleveland-Cuyahoga County Food Policy Coalition can divert food from landfills to instead be donated, composted, or eaten by the original purchaser. This research endeavors to scrutinize food disposal practices in the Cleveland-Cuyahoga County area in order to propose policies that will serve as effective measures to achieve sustainable food waste reform. Systematic review of literature, analysis of notes from CCCFPC convenings, and quantitative and qualitative evaluation of a survey were used in this research.

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Tayah Turocy
Youngstown State University *Brian D. Leskiw, Mentor*

The gas-phase ligand exchange reaction of calcium diisopropylacetylacetonate complexes with a series of metal β-diketonates was observed to occur within a triple quadrupole mass spectrometer following co-sublimation. By varying the identity of the ligand and metal center, the gas phase reactivity, as well as the corresponding fragmentation pattern of the resulting species, was investigated. These novel complexes also show the prevalence to form larger clusters through the addition of extra metal, as well as chelation of additional ligand. Further studies were conducted to test the cluster's recurrence with interchanged metal centers. Calcium clusters show promise as new materials with applications in thin film deposition and the formation of nanomaterials.

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Francisco Castillo, Benjamin Huston
Cuyahoga Community College *Vanitha Parameswaran, Cathleen Rossman, Mentors*

Today concussions are a big topic in the world of football along with new equipment that will hopefully prevent it. In order to advance in the future, we must take in considering the now and the past. This project aims to find the difference in rate of concussions over three various age groups Youth (Flag – Middle School), Current (High School –

effectiveness of the nanochain technology in detection of dormancy will be compared to the use of conventional iron oxide spheres in this model.

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Mackenzie Scrocco, Logan Weinreber, Edward Ellks, Timothy Chamberlain
Youngstown State University "HQ H;JJ !EDD;HP +;DJEH

Kevlar reinforced materials are commonly used in ballistics defense applications. The group utilizes 3D printing to reinforce nylon infused carbon fiber material with Kevlar to design specimens and perform various impact tests, such as Charpy impact testing and gas gun ballistic testing. The group hopes to use the data collected to better understand how various properties of these materials, when 3D printed, perform under impact.

ec 'FLMALAN< /<>DGO , N<F
Benjamin Wilson, Brian Zellers, Dillon Kennedy
Youngstown State University (7B7B (7B7B?P +;DJEH

This project set out to refurbish an existing Reflow Oven that the Electrical Engineering Department at YSU had for future research and academic use by staff and students. Part of our design included using a raspberry pi 3 as the "brain" for the device to allow for PID and PWM for more accurate control of the device. Also for maintainability most of the replaced parts were chosen so that they could be easily replaced should something go awry.

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Matthew Manna, Danielle King, Matthew Mangapora, Courtney Budnik, Stephen Ersek
Youngstown State University &E@@7J +;>H?P +;DJEH

Facility design plays a key roll in the economics of a company. Proper designing and planning of a facility can have major effects on cost savings. An estimated 20%-50% of total costs in manufacturing are material handling related. With planning and analysis, bottlenecks, excessive idle times, and efficient employee/labor utilization can be determined and addressed accordingly. In order to create the most efficient facility, you must accommodate for current production, employees, machinery, and future production. Many procedures and methods have been developed in the past 100 years in order to create the best possible facility given the conditions and limitations. Methods to help complete the process ľ

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