

# Undergraduate Research Symposium May 17, 2013 Mary Gates Hall

## Online Proceedings

### POSTER SESSION 1

Commons West, Easel 20

11:00 AM to 12:30 PM

#### Characterizing the IDPN Lesion of Hair Cells in the Mammalian Cristae

Kayla Rose (Kayla) Ritchie, Senior, Biology (General), Neurobiology

Mentor: Olivia Bermingham-McDonogh, Biological Structure

Mentor: Amber Slowik, Biological Structure

Mentor: Catherine Ray, Biological Structure

The hair cells of the inner ear are the functional sensory units of hearing and balance in the auditory and vestibular system, respectively, and are therefore a major cause of deafness and balance deficiencies when lost after damage. Unlike in reptiles, birds and fish, existing studies suggest that the mammalian sensory epithelia of the inner ear lack the ability to regenerate hair cells after such damage. Here we focus on the cristae, which are a component of the vestibular system, and are responsible for sensing angular acceleration and rotation of the head. Previous research has suggested that Notch activity, a crucial signaling pathway necessary for patterning the sensory epithelium, continues in adult mouse cristae, suggesting the potential for regeneration after damage. We characterized a lesion protocol for this system through the administration of the ototoxin iminodipropionitrile (IDPN) to test whether spontaneous regeneration of hair cells is present in the mammalian cristae. We used confocal microscopy to image the layers of the cristae's sensory epithelium after immunohistochemistry staining with markers specific to hair cells. Each cristae's hair cells were counted, and an average was obtained for cristae for each of several time points after IDPN injection. Preliminary findings show a severe reduction in total hair cell number in the mouse cristae one week after IDPN injection, and continued loss of hair cells in subsequent weeks. While we saw no evidence of spontaneous regeneration in the mouse cristae, this lesion protocol may be used in further hair cell regeneration studies using various manipulations or drugs, such as inhibition of Notch signaling.

### SESSION 1F

#### FROM PAPYRUS TO THE INTERNET: TEXTS IN TIME

Session Moderator: James Clauss, Classics

238 MGH

1:15 PM to 2:45 PM

\* Note: Titles in order of presentation.

#### Bad Girls: The Role of the *Mala* in Ancient Greek and Roman Literature

Malia Charlotte Piper, Senior, Classics, Classical Studies

Mary Gates Scholar

Mentor: Catherine Connors, Classics

The figure of the *mala* or “bad woman” is present in much of Ancient Greek and Latin literature. In this context, being a *mala* means being a woman who participates in the process where an older woman advises a younger woman about how to profit from men who will pay to sleep with her. The *mala* assumes many different forms from the *lena* (madam) and the *puella* (girl) of Roman love elegy to the *????τῶρα* (courtesan) of Lucian's *Dialogues of the Courtesans* and is also present in Roman comedy. Although, *mala* is a Latin word, Lucian's work provides examples of the same type of “bad women” who advise other women how to profit from their lovers. Despite the fact that the *mala* is one of the most pervasive characters in classical literature, my research project is one of the first to look specifically at the figure of the *mala* as a distinct character type across several literary genres. The characteristics of the *mala* that are present in all of these genres highlight the fact that this character is an important vehicle for expressing cultural anxieties surrounding women. I am most interested in defining the characteristics of the *mala* in these different literary contexts and genres, and documenting the ways in which the language of power and control is used with *malae*. Above all, power characterizes the *mala*. She has power over men, language, and worst of all, she has the power to transform other girls into *malae* through her teaching. In this paper, I will define the characteristics of the *mala* and document the ways in which the language of power and control is used with *malae* in Plautus' *Casina*; the elegies of Propertius, Tibullus, and Ovid; and Lucian's *Dialogues of the Courtesans*.

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## SESSION 1F

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*1:15 PM to 2:45 PM*

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#### **The Birds and Bees (and Beasts) of *The Aeneid*: A Conservationist's Assessment of Wildness and Humanity**

*Sarah Addie Montgomery, Senior, Classical Studies, Biology  
(Ecology, Evolution & Conservation)*

*Mentor: Catherine Connors, Classics*

Virgil utilizes descriptions of and comparisons to various animals in *The Aeneid*, which may represent how contemporary Romans and the ancient world in general viewed the wildness and domestication of animals. Animals are ridden in battle and interpreted as omens; possessed as property and feared as predators; emulated as models and admired for beauty. Animals of all sorts appear across the landscape of the text and inside the imagination of the reader. The interplay between domestic animals and wild beasts in this epic poem highlights how Romans thought of themselves: beastly comparisons are used to demonstrate viciousness and courage in battle, and domestic animals are used as tools to appease the gods (in sacrifice) and as a way of showing human dominance. Dangerous animals remind humans (and Romans) of their place and size in the world, while domestic animals help enforce the social hierarchy and define humanity. However, the wildness of the beasts highlights the negative space behind “humanity” as well. When wildness is necessary in man’s definition of “self”, one must ask: what is the purpose of conquering (in some cases, even destroying) wildness, how is this utilized in literature, and what does it mean in ancient times or today? Exploring the animals of *The Aeneid* helps to define not only Virgil’s textual landscape and the world of ancient Rome, but in fact our own humanity and the role of wildness in it.