CENTER FOR EXCELLENCE in the
# NEUROSCIENCES

SEMINAR SERIES

## In vivo analysis of injury-induced cutaneous axon regeneration

**Sandra Rieger, Ph.D.**
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**Thursday, October 23rd 2014**
**12:15-1:15 p.m.**

Leonard Hall
UNE, Biddeford Campus

*Lunch will be provided*

Hosted by: Lei Lei, Ph.D.
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Zebrafish, frog tadpoles, and salamanders have the remarkable capacity to regenerate their appendages and heal without scar formation. An important aspect of wound healing and appendage regeneration is the interplay between wounds and regenerating peripheral sensory nerve endings. These nerve endings contribute to inflammation and healing, and loss of nerve regeneration has been associated with wound healing complications and lack of regenerative capacity. The goal of the Rieger lab is to study this interplay between nerves and wounds by utilizing the larval zebrafish as a model. Because larval zebrafish are optically clear they can visualize cellular processes in live animals. Dr. Rieger and her lab has already discovered that hydrogen peroxide plays a critical role in setting the stage for nerve ending regrowth following tissue injury.

The Rieger lab is also interested in how metabolic diseases adversely influence nerve ending repair mechanisms, which has been little investigated to date. Nerve endings degenerate due to a variety of causes, including traumatic injuries, infections, chronic kidney disease, autoimmune disorders such as rheumatoid arthritis or lupus, and exposure to toxins such as alcohol. One of the most common causes is diabetes, which has been diagnosed in more than 25 million people in the United States alone. They have recently established a diabetic larval zebrafish model that allows them to study nerve repair in living animals. Dr. Rieger's research may help us learn how to improve healing for the millions of people with sensory nerve damage.

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