UMN-Duluth Talk

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Wound Healing and Regeneration in an Annelid Model System

*Lumbriculus variegatus* provides a unique opportunity to identify pathways triggered following wound formation in a system that is committed to successful regeneration and recovery of function. Lumbriculus, a freshwater segmented worm, is capable of regenerating an entirely new body from a fragment that is 1/50th the size of the original animal. Unlike other regenerating model systems, Lumbriculus possesses the ability to recover structure and function along any portion of the anterior-posterior body axis.Lumbriculus thus provides a simplified template for the study of basic biological questions that are challenging to elucidate in organisms with more complexity. While there is much to be learned from this unique model system, studies have lagged due to the lack of available tools for gene expression analysis. Genetic model organisms like the fruit fly, the nematode worm, and mouse have driven biological discovery for more than thirty years. While these model systems have proven to be fruitful in the knowledge they’ve offered, they often do not allow for study of other equally interesting biological traits, such as regeneration. The work in our lab represents the first steps towards development of a genetic toolbox for Lumbriculus, with the ultimate goal of creating a more tractable model system for the study of wound healing, regeneration, and recovery of function. Understanding of these mechanisms and how they have evolved in all phyla, may also lead to advancement in the field of regenerative medicine.