reproductive organs. NPY-like hormones are implicated in diverse
functions such as feeding behavior, energy homeostasis, and alcohol
sensitivity, in species ranging from flies to humans. Our study
suggests a role for NPY signaling in the regulation of reproductive
physiology in flatworms.

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Program/Abstract #70
Neuropeptide signaling in planarian sexual development
and regeneration
Amir Saberi, James Collins, Phillip Newmark
University of Illinois at Urbana-Champaign, Urbana, IL, USA

Sexual free-living planarians can dynamically develop or dis-
mantle their reproductive tissues in response to external conditions.
We recently showed that a Neuropeptide Y-like peptide secreted by
planarian nerve cells is essential for proper sexual development.
Specifically, planarians without this hormone fail to develop or
maintain reproductive organs. To identify receptors for this peptide,
we analyzed spatial expression and RNA interference phenotype of a
subset of retinal cells with apical nuclei. Interestingly, while each
transgene showed overlapping expression, distinct temporal patterns
were noted. We are currently assessing how each expression pattern
relates to cell fate within the retina.

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Program/Abstract #71
Lefty activity is regulated by prodomain-mature lefty interaction
Adrian Vasquez, Amapola Balancio, James Nowakowski,
William Branford
Wayne State University, Detroit, MI, USA

Members of the transforming growth factor beta (TGFβ) super-
family of secreted ligands play an integral role in vertebrate embryonic
development. One member of this superfamily, Nodal, regulates
mesendoderm induction and left-right axial development. Lefty, an
atypical member of the TGFβ superfamily, inhibits Nodal signaling by
interaction with EGF-CFC Nodal co-receptors and Nodal itself. Without
Lefty function, unregulated Nodal signaling severely disrupts embryo-
nic development, yet little is known about how Lefty activity is
regulated. Many members of the TGFβ superfamily, including Lefty, are
inactive prior to proteolytic cleavage of the prodomain from the
mature portion of the protein, as shown by mutants incapable of being
cleaved. Based on three results, we propose that Lefty inhibition is
mediated by interaction between the prodomain and mature Lefty.
First, the Xenopus Lefty (Xlefty) prodomain can co-immunoprecipitate
mature Xlefty, but not uncleaved Xlefty. Second, the co-expression of
the prodomain with full-length Xlefty in the Xenopus embryo
antagonizes the effects of Xlefty overexpression. Third, the expression
of the Xlefty prodomain in the Xenopus embryo results in exogastrula-
tion, a phenotype which we have previously observed with knock-
down of Xlefty. Additionally, we propose that prodomain-mature
Xlefty interaction prevents mature Xlefty from interacting with
Nodal co-receptors. Consistent with this proposal, preliminary
results suggest that Xenopus Cripto-related 1, an EGF-CFC co-
receptor, co-immunoprecipitates mature Xlefty, but not uncleaved
Xlefty. Future studies will be aimed at determining if a post-cleavage
prodomain-mature Xlefty interaction mediates a latent Xlefty complex.

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Program/Abstract #72
Poster Board #B15

Program/Abstract #72 will be presented as scheduled, but the
abstract cannot be published due to lack of license agreement
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Program/Abstract #73
Notum 1a is a specific inhibitor in Wnt/Beta-Catenin signalling
G. Parker Flowers, Jolanta Topczewska, Jacek Topczewski
Northwestern University, Chicago, IL, USA

Wnts are a large family of secreted proteins crucial for numerous
processes in the developing embryo. Proper development requires
tight regulation of Wnt signalling both intracellularly and extra-
cellulary. Glypicans are a class of heparan-sulfate proteoglycans