



# Department of Genetics

## Nanocourse Announcement

# Interorgan Communication Pathways in Physiology and Disease

***Friday, February 26<sup>th</sup> 2016***

***12:45 pm – 4:15 pm***

***Harvard Medical School, TMEC 250***

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Local tissue homeostasis is relatively well understood, while long-distance communication between organs is not. Studies from invertebrates (e.g., *Drosophila*) and mammals have documented the existence and importance of a number of factors that mediate the communication between organs – including leptin, irisin, and GDF-11. These factors act to coordinate the function of distal organs in physiological (e.g., starvation, high-fat diet) and disease states. The relevance of interorgan communication factors to diseases is illustrated by systemic conditions including cancer cachexia. The aim of this nanocourse is to provide a broad entry point into the expanding field of interorgan communication. We will identify the known secreted factors for which there is strong evidence of their direct roles in interorgan communication pathways. Further, we will examine the physiological stimuli and mechanisms that induce the secretion of these factors in the organs-of-origin. In addition, we will determine the cellular and tissue processes are induced in the destination organs of the systemic factors. Moreover, we will evaluate the effect of dysregulation of the interorgan communication factor pathways on the overall organism physiology, such that occurring in disease. Finally, we will discuss and propose clinical approaches that could be used to target and treat dysregulated interorgan communication pathways. Throughout the course, we will illustrate how studies in model organisms ranging from *Drosophila* to mammals can be used in high-throughput discovery of interorgan communication secreted factors. With this course, we hope to spark excitement and interest into the novel field of interorgan communication.

**All are welcome. No registration is required.**

**See [nanosandothercourses.hms.harvard.edu](http://nanosandothercourses.hms.harvard.edu) for a complete nanocourse schedule.**