

# The Fitzpatrick Institute for Photonics

FIP Friday Breakfast & Poster Presentation

## Importance of vinculin tension during collective cell migration

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Collective cell migration (CCM) is a fundamental biological process that plays a prominent role in both developmental events (e.g. gastrulation and neural crest migration) and various pathophysiologies (e.g. congenital heart defects and cancer metastasis). In CCM, cells are both perturbed by and exert forces on adjacent cells as well as the extracellular matrix through two primary structures, namely focal adhesions (FAs) and adherens junctions (AJs), respectively. How cell-generated forces are transmitted through

cell linkages to give rise to CCM remains poorly understood. To study molecular protein forces within living cells, our lab and others have developed a tunable, genetically-encodable Förster resonance energy transfer (FRET)-based tension sensor module. This molecular force sensor has previously been inserted into the protein vinculin, a key mechanical linker protein in both FAs and AJs. Using this technology, we have examined the relationship between vinculin load and CCM

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### Poster Presenter:

**Evan Gates, Graduate Student**  
from Dr. Brenton Hoffman's Lab

**Friday, November 10, 2017**

FCIEMAS Atrium  
10:00 am

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