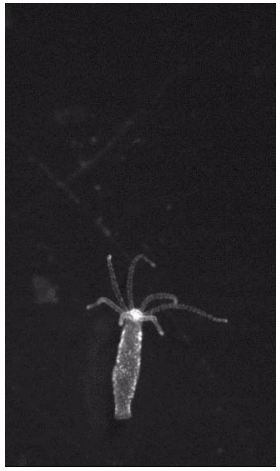
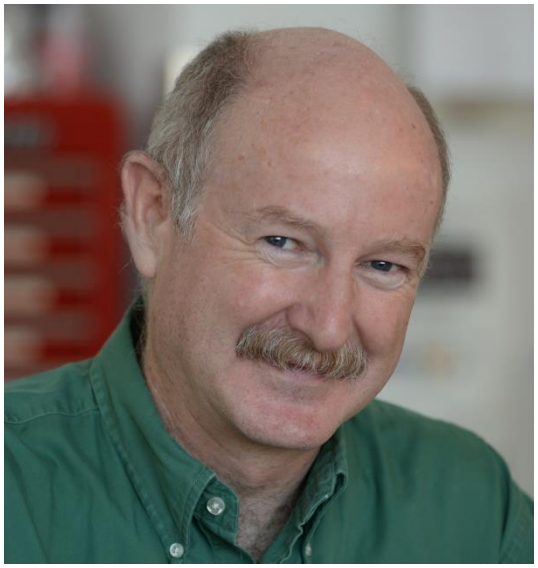
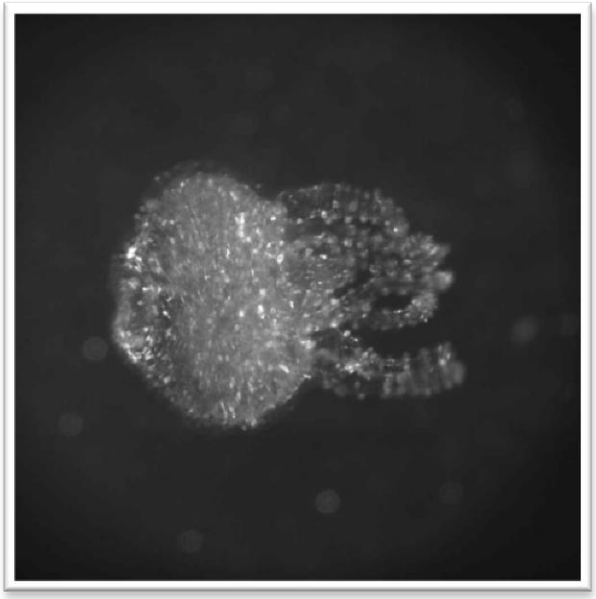
The mind of a cnidarian

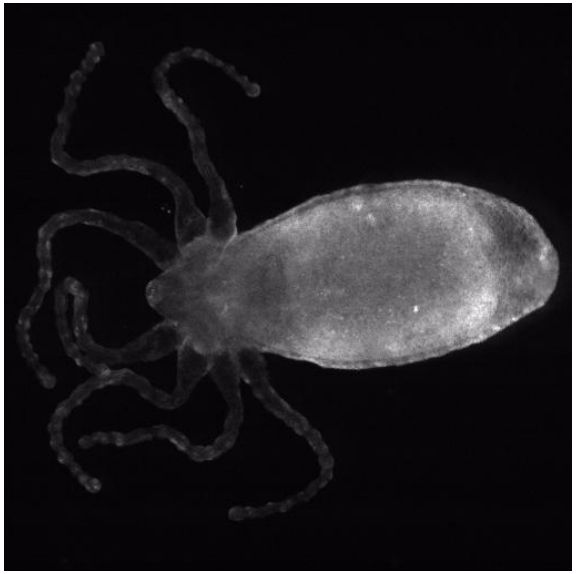
Breaking the neural code in Hydra vulgaris







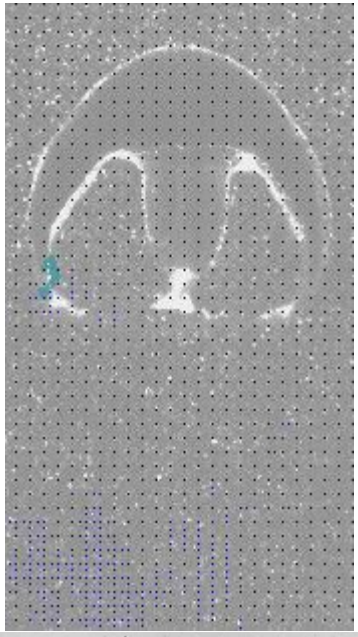


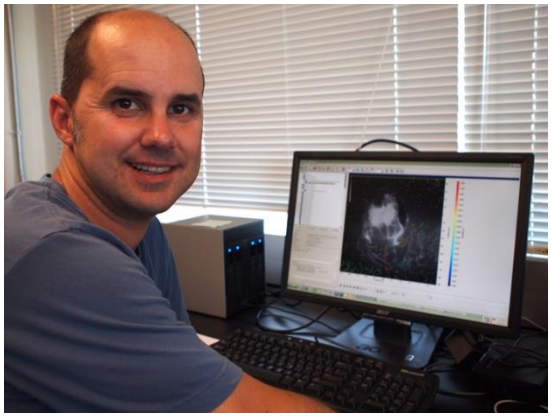


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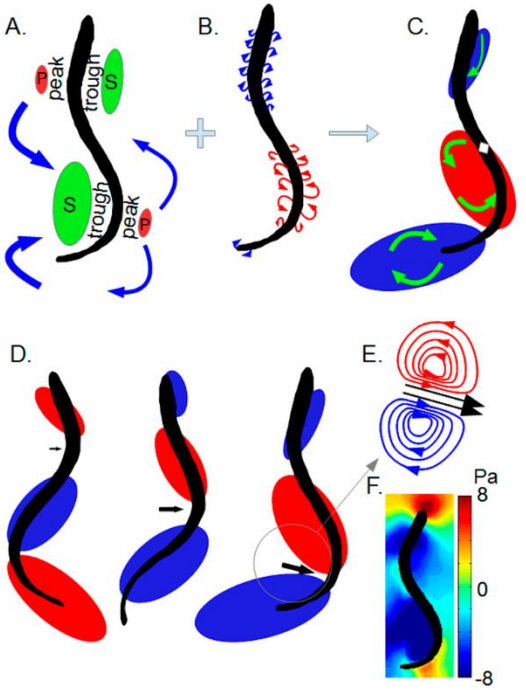
Animal-Fluid Interactions

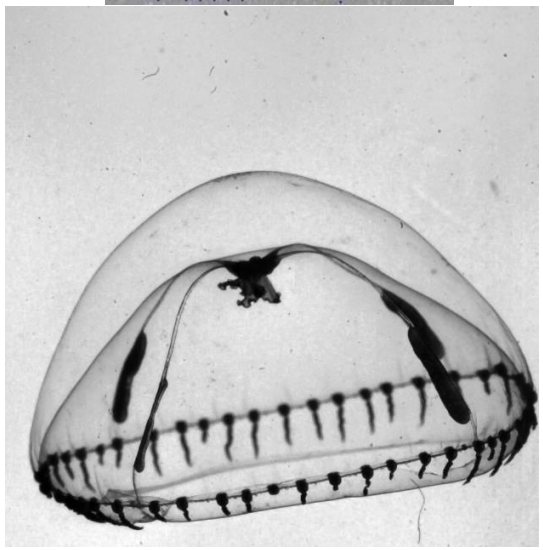
Use high-speed imaging and fluid analysis to quantify how animals function in fluid environments

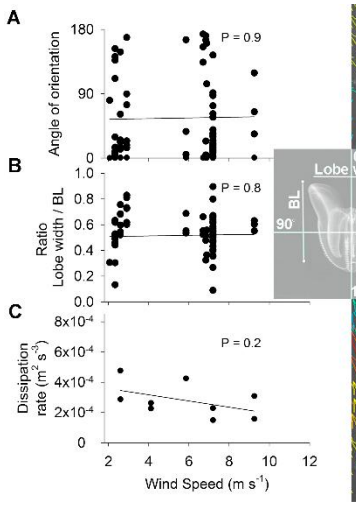


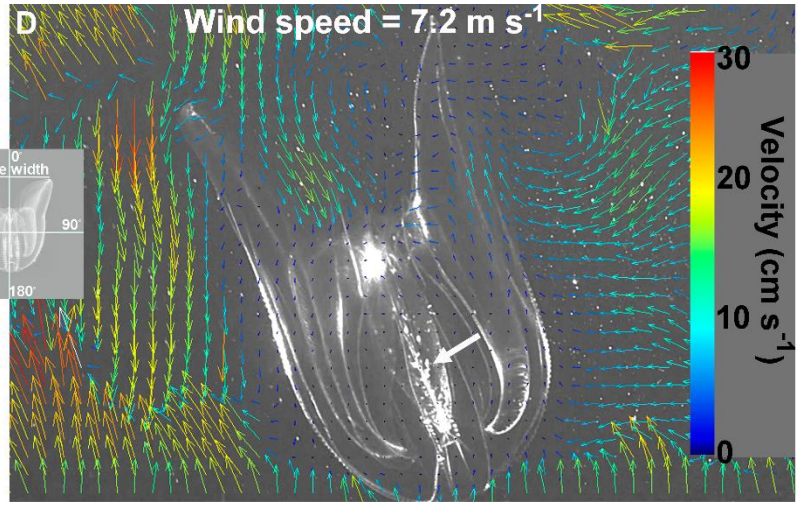


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NXR and Pancreas Development

National Xenopus Resource

NXR

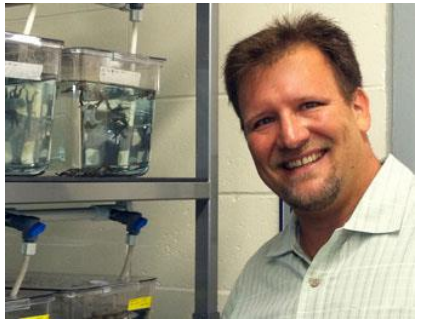
www.mbl.edu/xenopus
xenopus@mbl.edu

-Maintain and distribute *X. laevis* and *X. tropicalis*

-Research Facility Service

-Workshops

genome editing
advanced imaging
bioinformatics



Marko Horb
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HORB LAB

-Develop new models of human disease using CRISPR-Cas

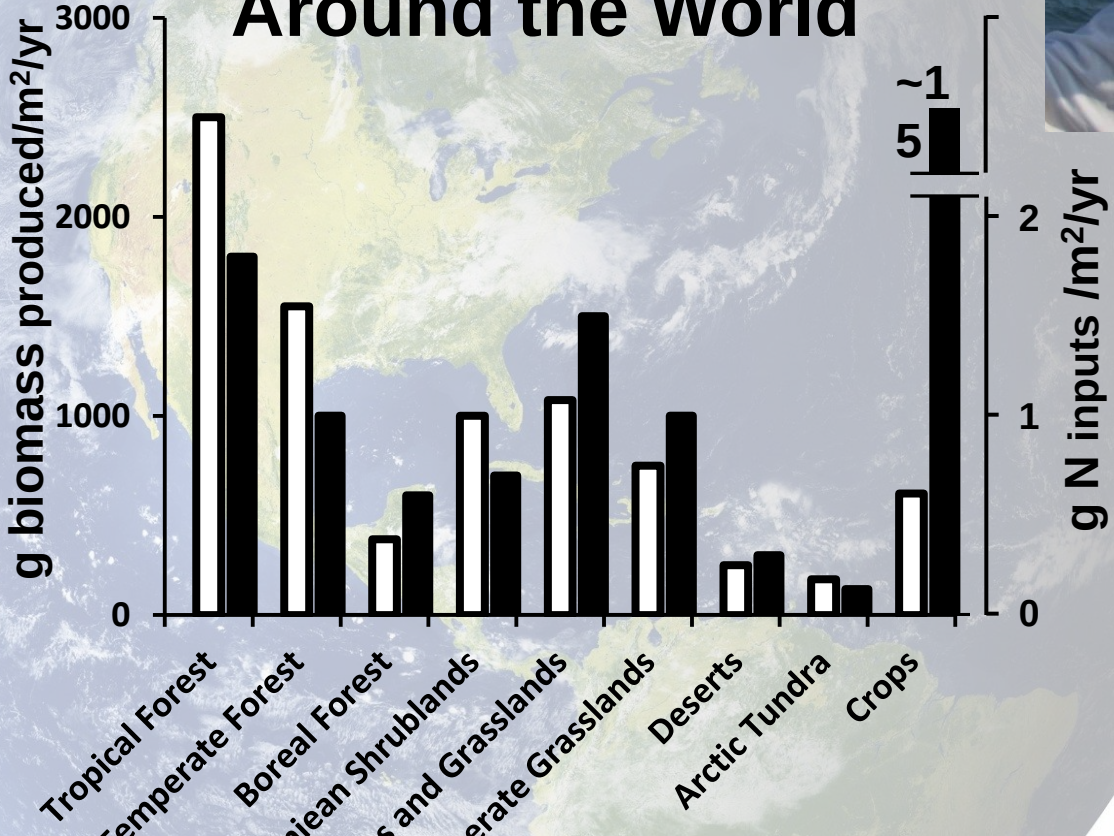
-Pancreatic beta cell GRN

-Directed differentiation of pancreatic beta cells

Plant Production in Terrestrial Ecosystems Around the World



Ed Rastetter
Starr 234
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Natural Ecosystems: 700-1400 g biomass produced per g N input to the ecosystem

Crop Ecosystems: ~40 g biomass produced per g N input to the ecosystem

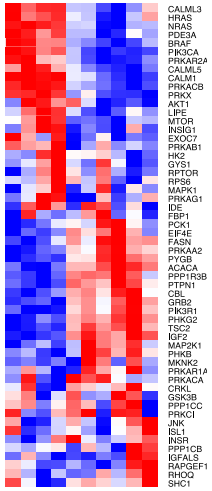
Maternal effects and aging

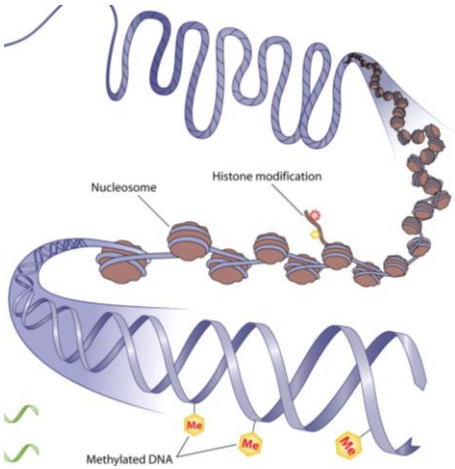
Rotifers as a model system

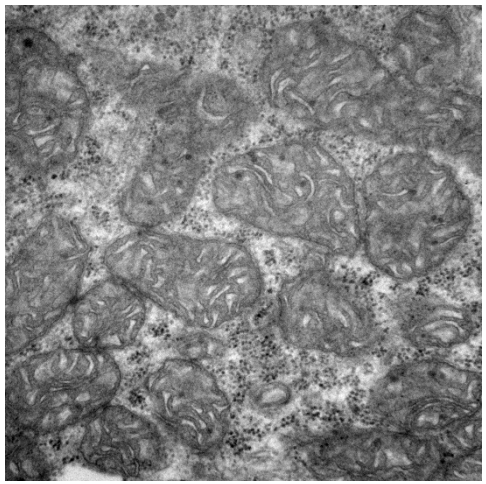
- Food
- Temperature
- Maternal Age
- Maternal Food
- Specific Genes
- Glycerol
- Ethanol

→ LIFESPAN and HEALTH





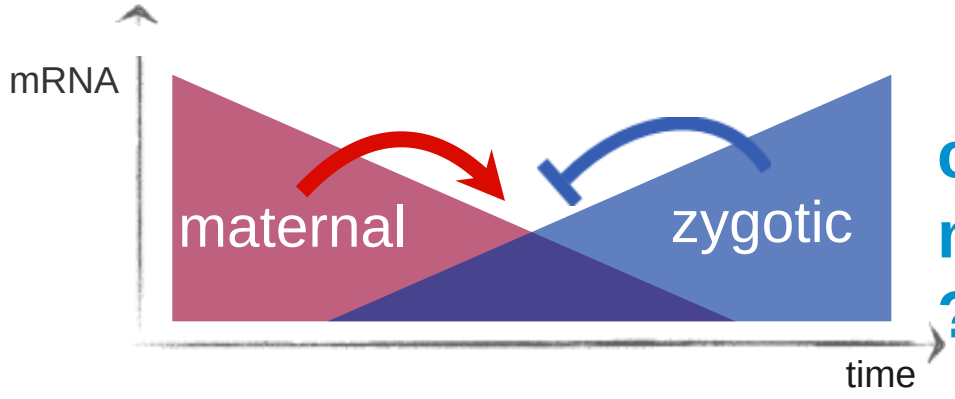




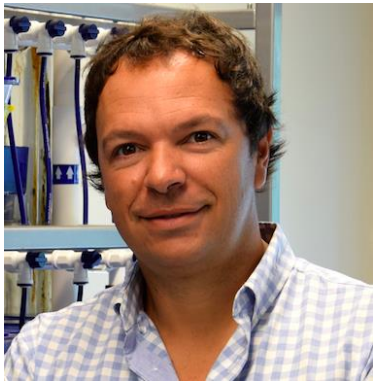
Kristin Gribble
MBL
Lillie 319

Deciphering the regulatory code during the maternal to zygotic transition

Nanog
Oct4
SoxB1
?



miR-430
codon optimality
m6A
?



Antonio Giraldez
Yale University
Rowe 211

	U	C	A	G	
U	UUU Phe	UCU Ser	UAU Tyr	UGU Cys	U
	UUC Phe	UCC Ser	UAC Tyr	UGC Cys	C
	UUA Leu	UCA Ser	UAA Stop	UGA Stop	A
	UUG Leu	UCG Ser	UAG Stop	UGG Trp	G
C	CUU Leu	CCU Pro	CAU His	CGU Arg	U
	CUC Leu	CCC Pro	CAC His	CGC Arg	C
	CUA Leu	CCA Pro	CAA Gln	CGA Arg	A
	CUG Leu	CCG Pro	CAG Gln	CGG Arg	G
A	AUU Ile	ACU Thr	AAU Asn	AGU Ser	U
	AUC Ile	ACC Thr	AAC Asn	AGC Ser	C
	AUA Ile	ACA Thr	AAA Lys	AGA Arg	A
	AUG Met	ACG Thr	AAG Lys	AGG Arg	G
G	GUU Val	GCU Ala	GAU Asp	GGU Gly	U
	GUC Val	GCC Ala	GAC Asp	GGC Gly	C
	GUA Val	GCA Ala	GAA Glu	GGA Gly	A
	GUG Val	GCG Ala	GAG Glu	GGG Gly	G

Destabilizing Stabilizing codon

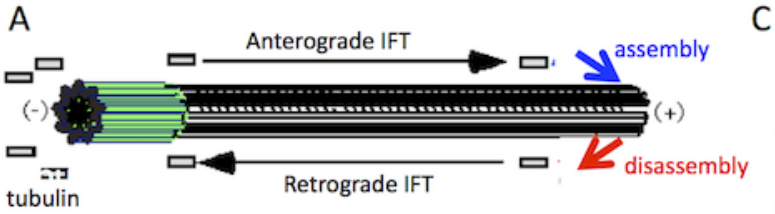
- Identify the codon optimality code across species

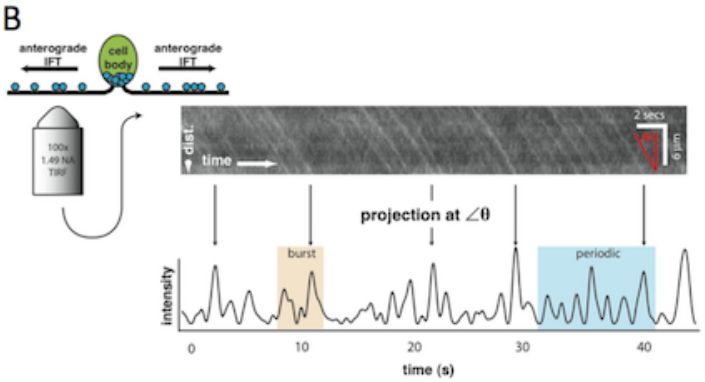
Lee and Bonneau et al., (Giraldez Lab) Nature (2013)
Leichsenring et al., (Driever Lab) Science (2013)
Vasenthow et al (Schier lab) Nature (2010)
Zhang et al., (Liu lab) Genome Research (2014)

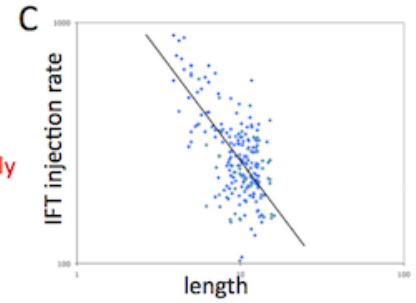
Giraldez et al., (Schier Lab)Science (2005), (2006)
Bazzini et al., (Giraldez Lab) Science (2012), EMBO 201
Ferg et al (Mueller Lab)Embo J, (2007)
Aanes et al (Aleström lab) Genome Research (2011)

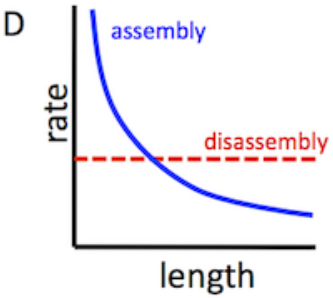
Cell Geometry

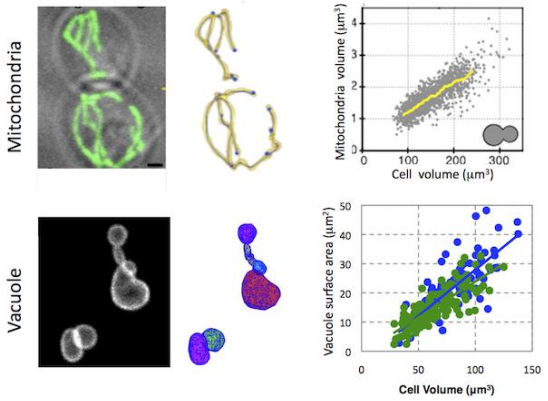
Organelle size and cellular morphogenesis





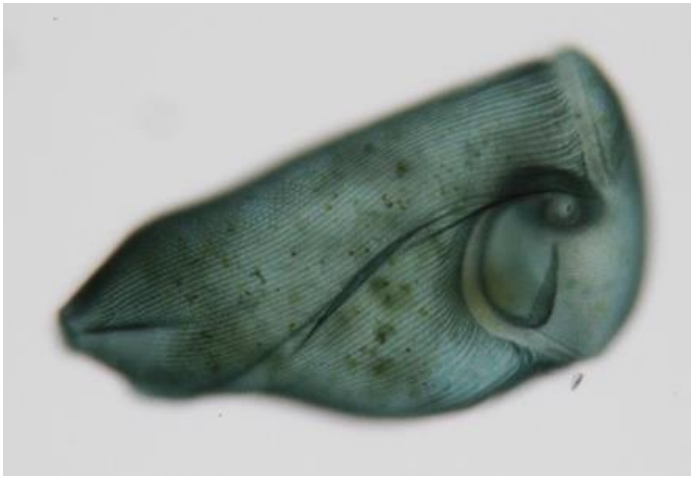




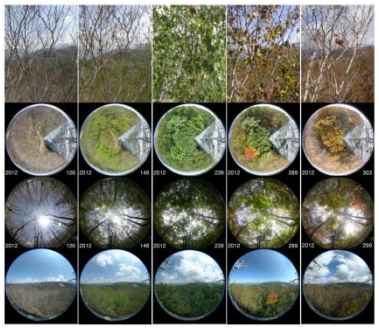


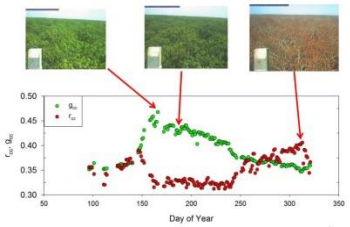


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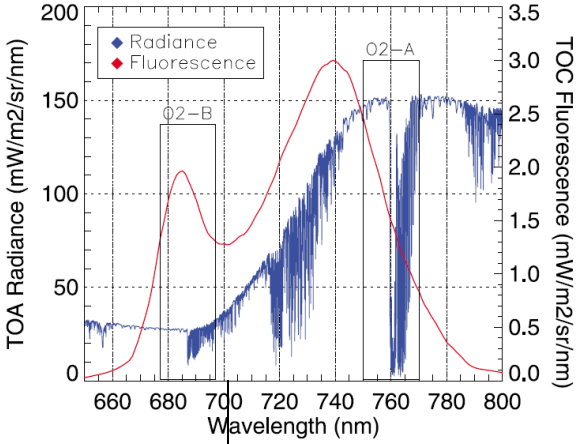


Imaging plants and quantifying ecosystem productivity



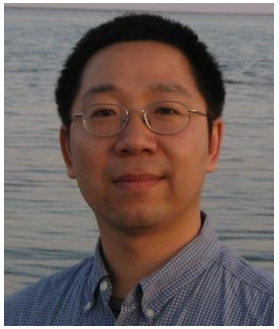


Tang et al. 2016

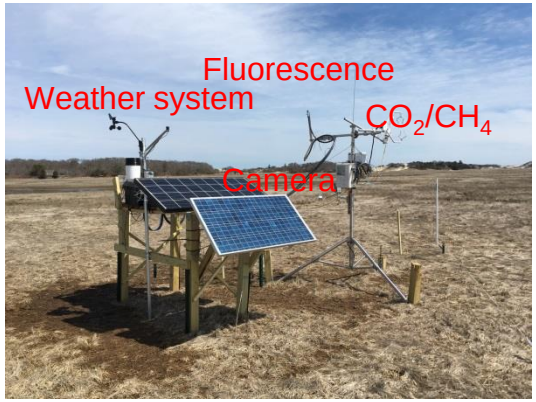


visible infrared Guanter et al. 2010

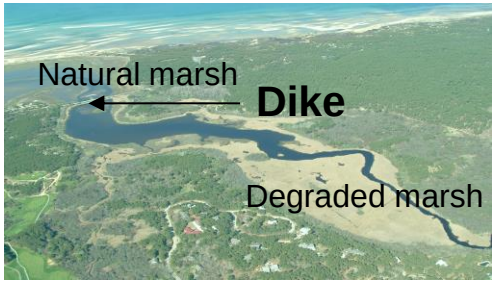
Solar induced fluorescence

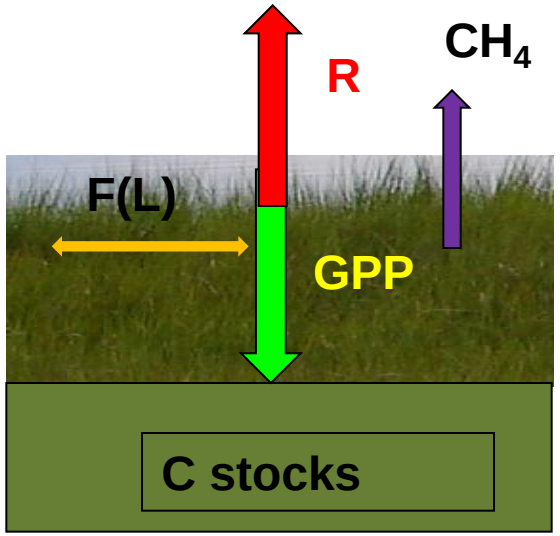


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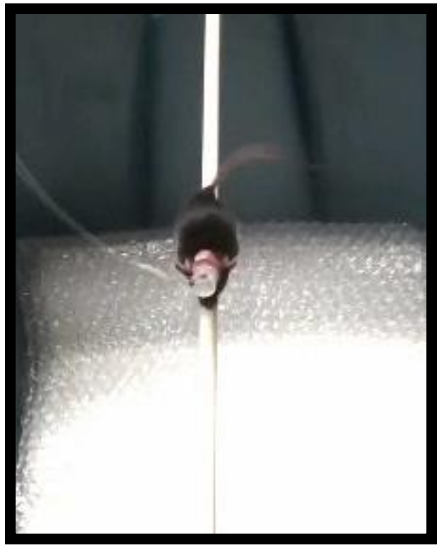


Coastal "blue" carbon, to mitigate climate change

Motor & non-motor functions of the cerebellum

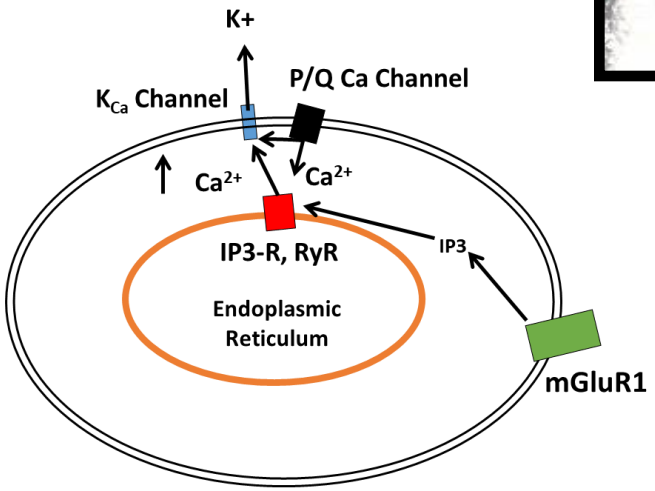




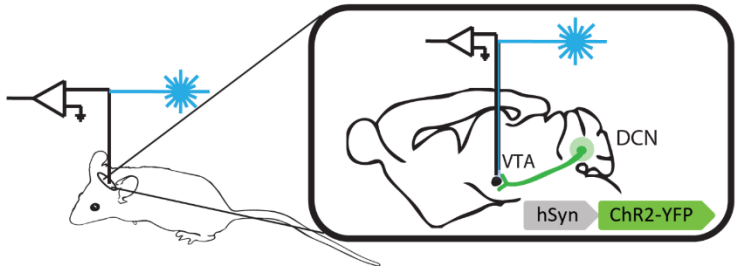




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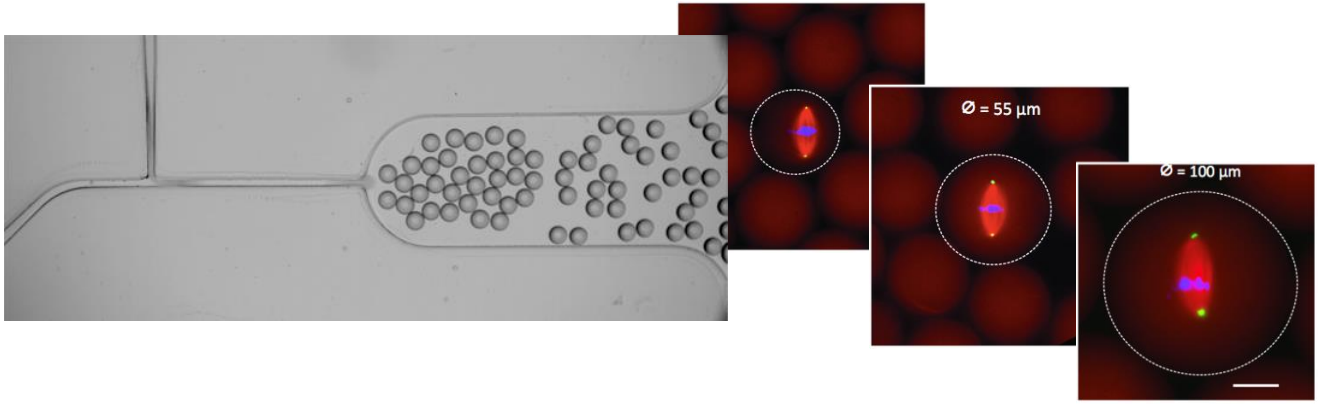


Purkinje cell soma



Microsystems for Model Systems

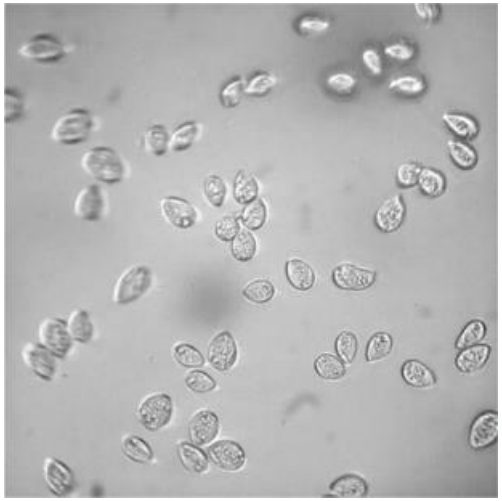
Microfabrication for growth and spatiotemporal patterning of cellular and subcellular events

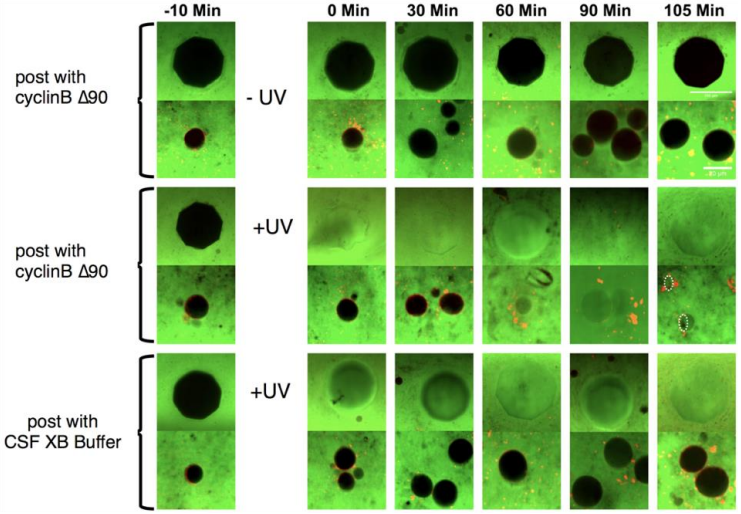


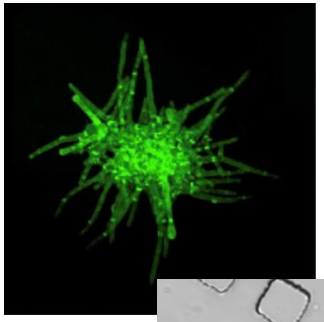
Hazel, *et al.*, *Science*, **2013**

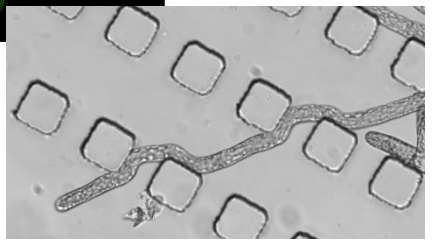


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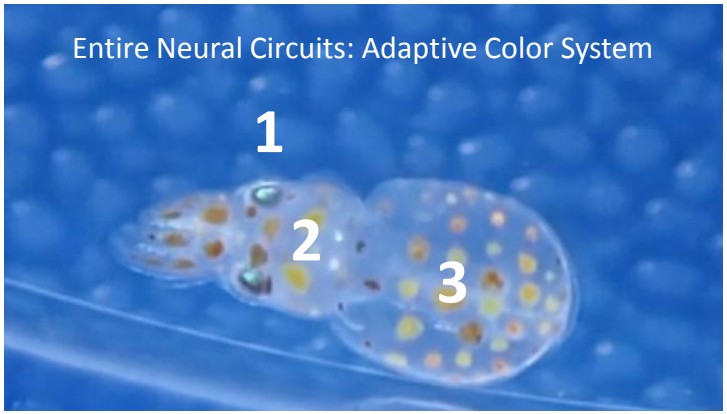






Cephalopod lab rats

Light-based genetic tools and genome editing



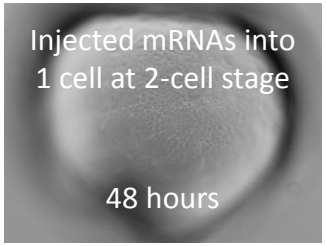
Imaging system

1	**Visual Input**
↓	
2	**Neural Processing**
↓	
3	**Color Output**



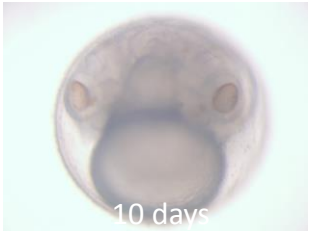
Eric Edsinger
Lillie 316 - edsinger@mbl.edu

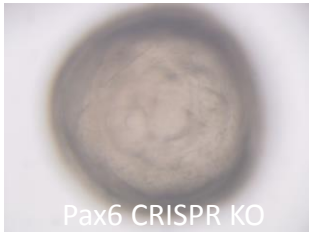
NOW HIRING! HFSP Postdoc

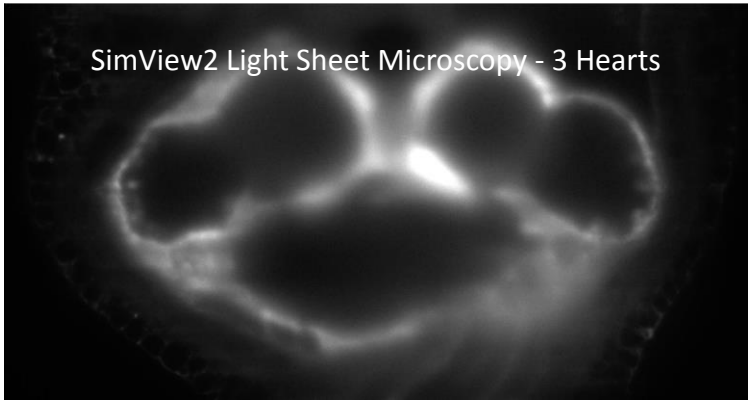






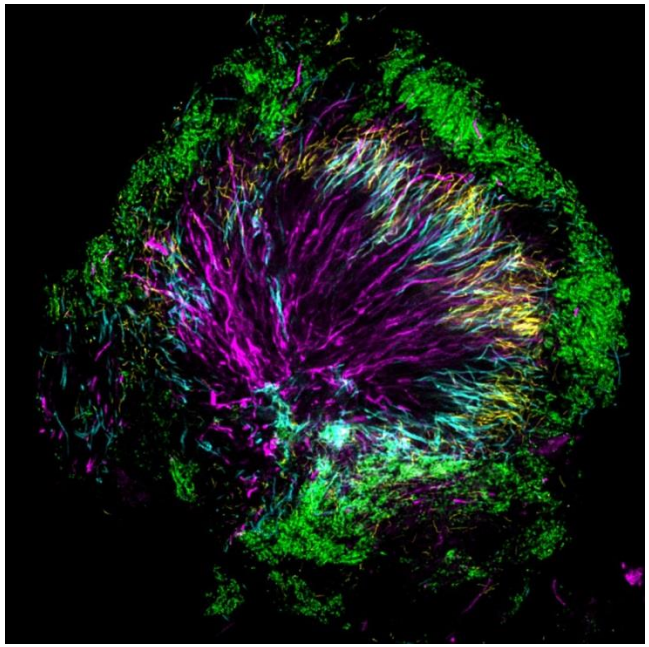


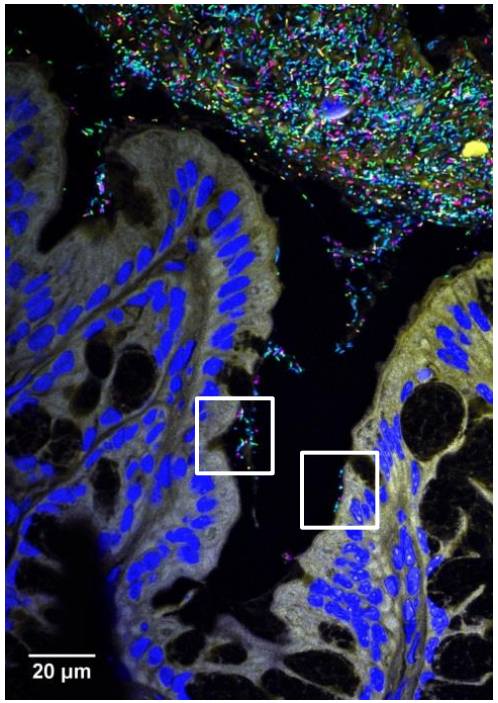




Microbial Communities

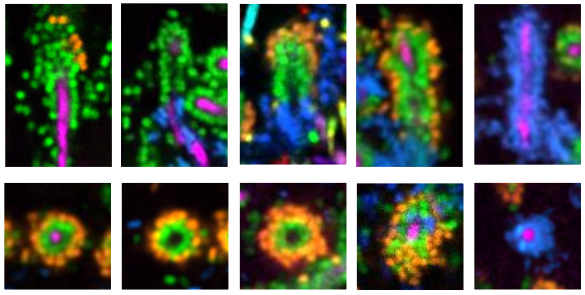
Micron-scale spatial organization and genomics







Jessica Mark Welch
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Corynebacterium *Leptotrichia*
Streptococcus *Fusobacterium*
Porphyromonas *Haemophilus*

