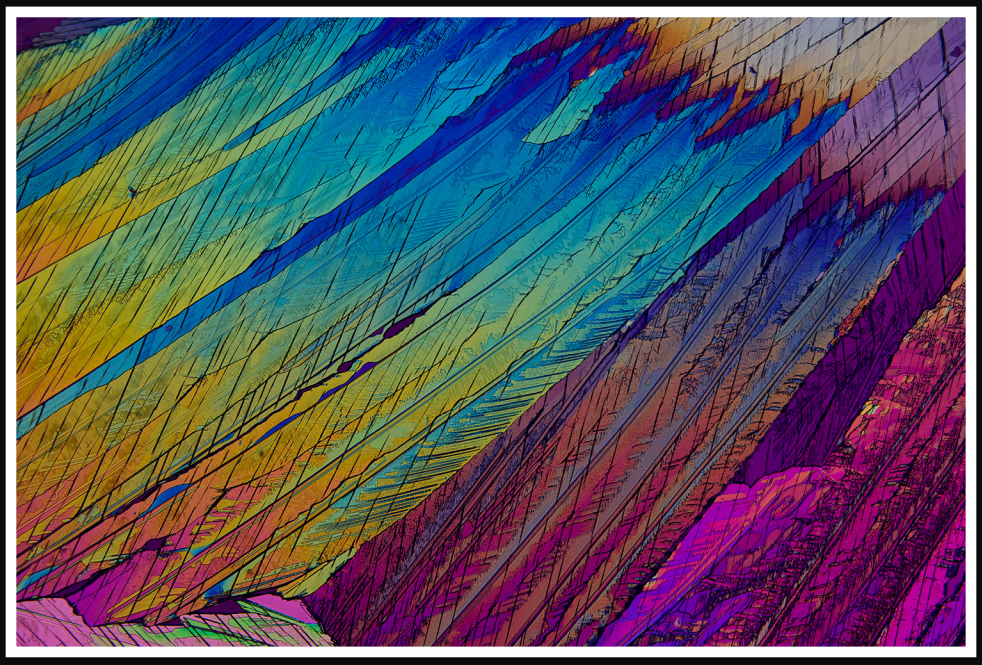
HOOKEd on Microscopy

a light micrograph competition

Congratulations to the Winners, Semi-finalists, and Honorable Mention Recipients of the 2017 HOOKEd on Microscopy Contest.

The Clemson Light Imaging Facility would like to thank everyone who participated in this year's contest.

CLEMSON LIGHT IMAGING FACILITY



“Parrot Feathers”

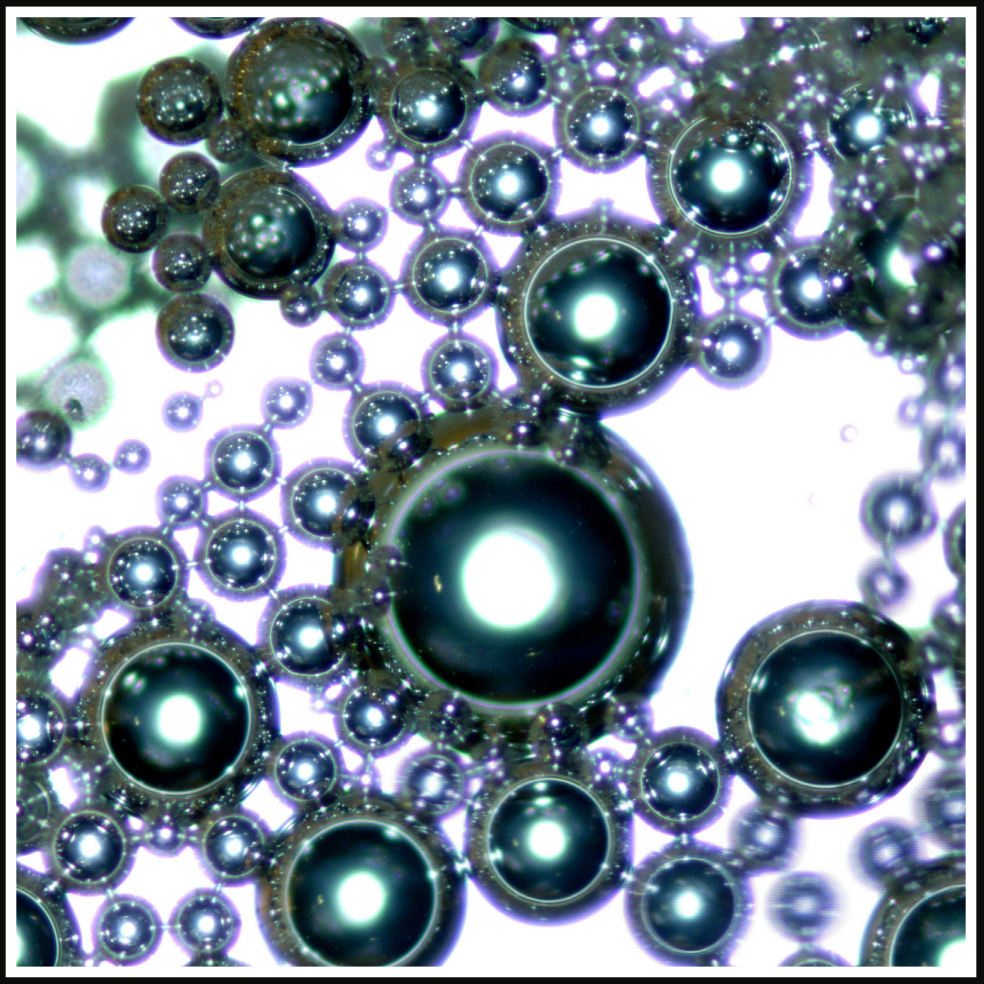
Carol Roullard

First Place, Experts’ Choice 2017

Adipic Acid using polarized light with 1st order red.

Microscope: Olympus BX1

Technique: Polarized Light



“YPD and Ice II”

Lukasz Kozubowski

Second Place, Experts’ Choice 2017

YPD medium was kept by mistake in the wrong part of the fridge and this resulted in ice formed on the surface of the medium. When I examined it under the microscope I was amazed by how the medium and the air trapped in the ice looked.

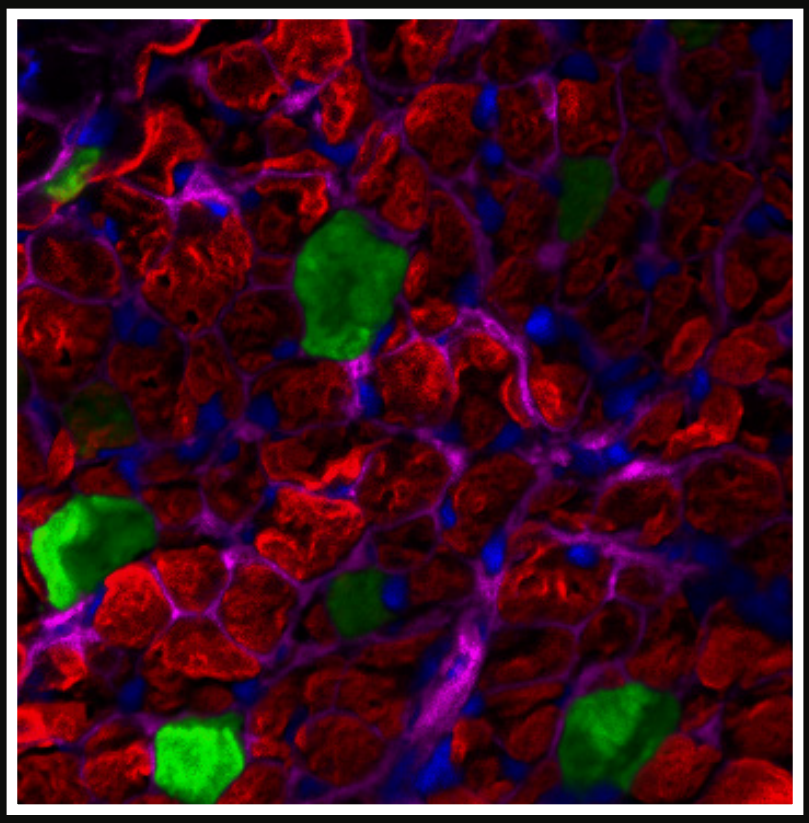
Microscope: Nikon Eclipse, 4X

Technique: Brightfield

“Blue-Eyed Weevil”
Sergii Dymchenko
Third Place, Experts’ Choice 2017

Weevil beetle with fluorescent eyes, reflected visible + ultraviolet micrograph.

Technique: Epifluorescence, reflected light



“5ish”

Markus F. Miller, Jr. and Susan Duckett

First Place, People’s Choice 2017

Fetal lamb Semitendinosus muscle stained for Type I (slow-twitch, Green) and Type II (fast-twitch, Red). Sections were counterstained with Dapi (blue) for genetic material and wheat germ agglutinin (magenta) to outline individual muscle cells.

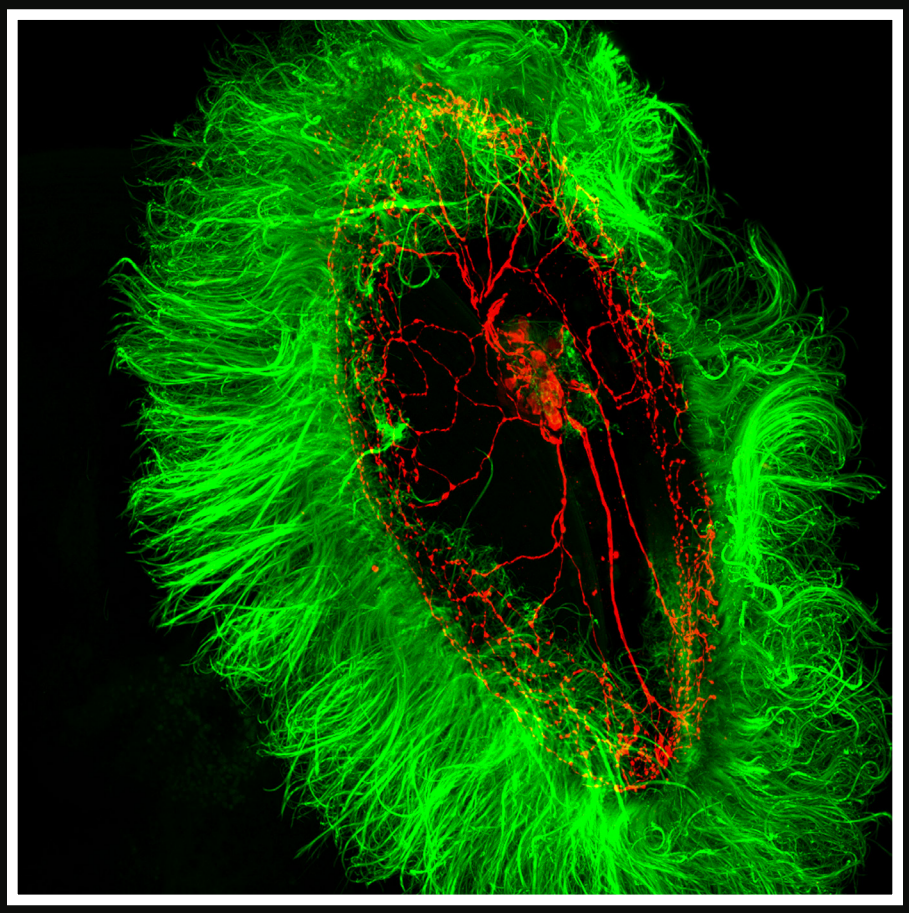
Technique: Confocal, 40X

”Glass Sunset”
Katheryn Grossack
Semi-finalist, 2017

Taken on the edge of a cut-glass vial. The DIC gives it the colors of a sunset over a red, rocky landscape.

Microscope: Nikon Eclipse DIC, 10X
Technique: Reflected DIC

Acknowledgements: MVA Scientific Consultants



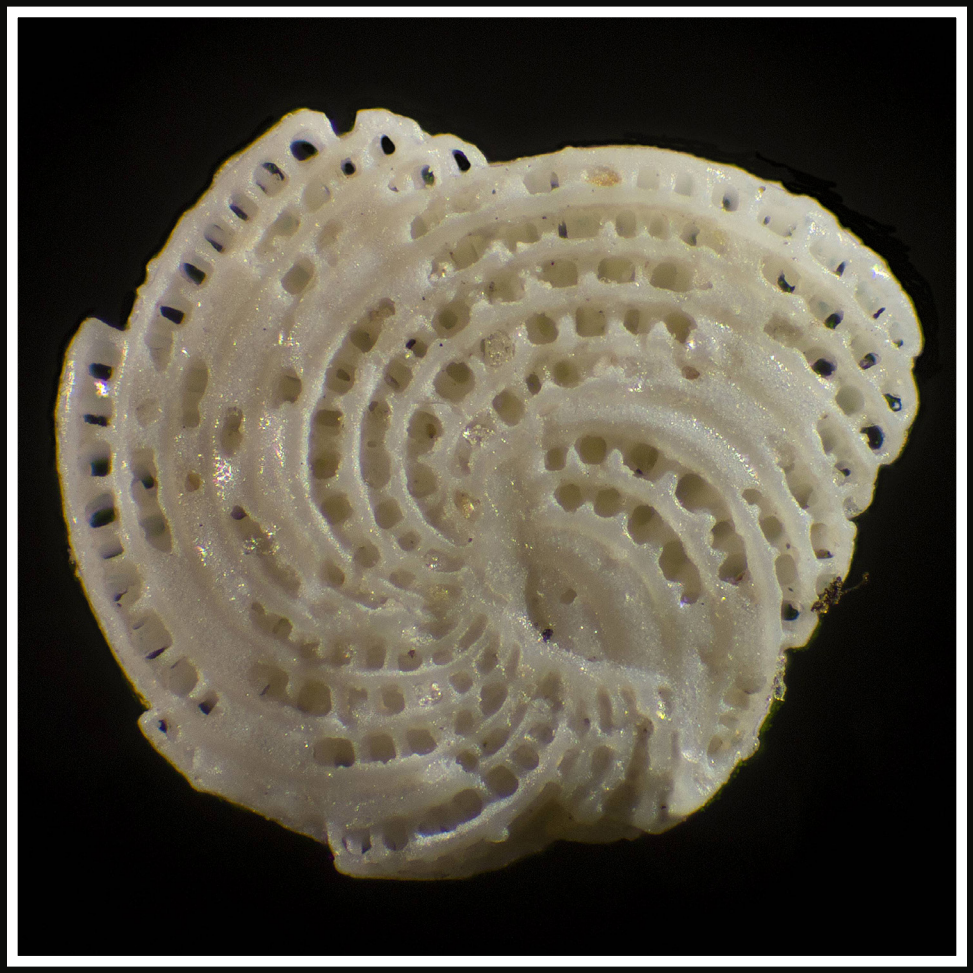
“Serotonergic Innervation in a Larval Velum”

Stephen Kempf
Semi-finalist, 2017

Velar cilia and serotonergic innervation originating from the apical ganglion (center) of an oyster veliger larva (Crassostrea virginica). Visualized with anti-serotonin (Alexa Fluor 594, red) and anti-acetylated tubulin (Alexa Fluor 488, green).

Microscope: BioRad 1024, Ziss 63X Oil
Technique: Confocal

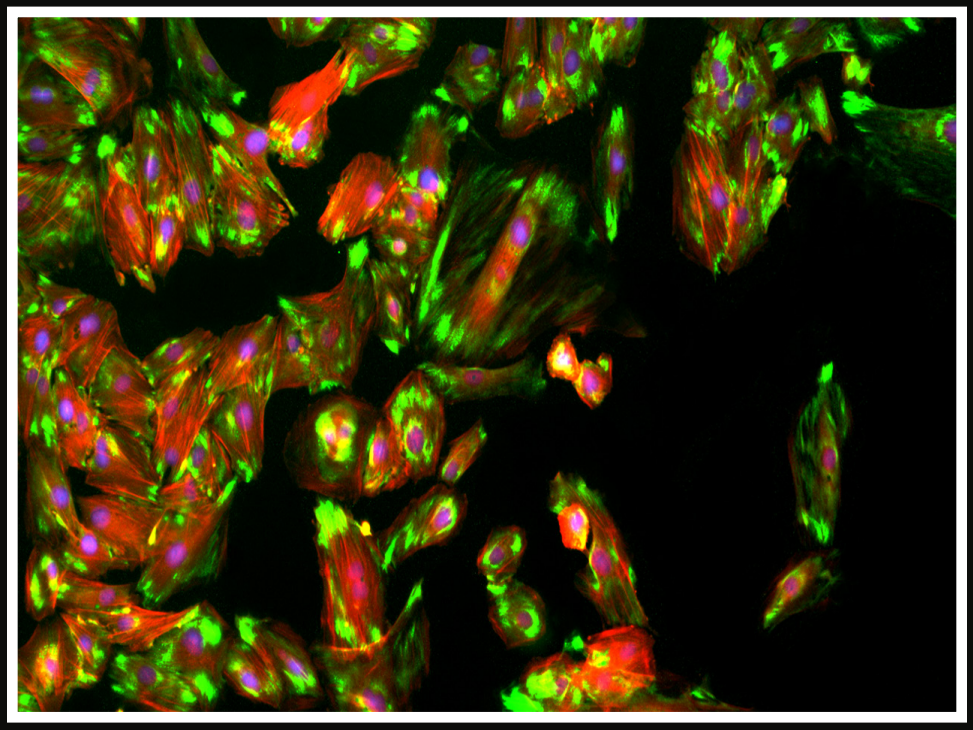
Acknowledgements: Auburn University Research Instrumentation Facility (AURIF)



“Fibonaci Foram”
Robert Simmons
Semi-finalist, 2017

Foraminiferan test collected from beach sand.

Microscope: Nikon E800, 40X
Technique: Epi-illumination stereo microscopy



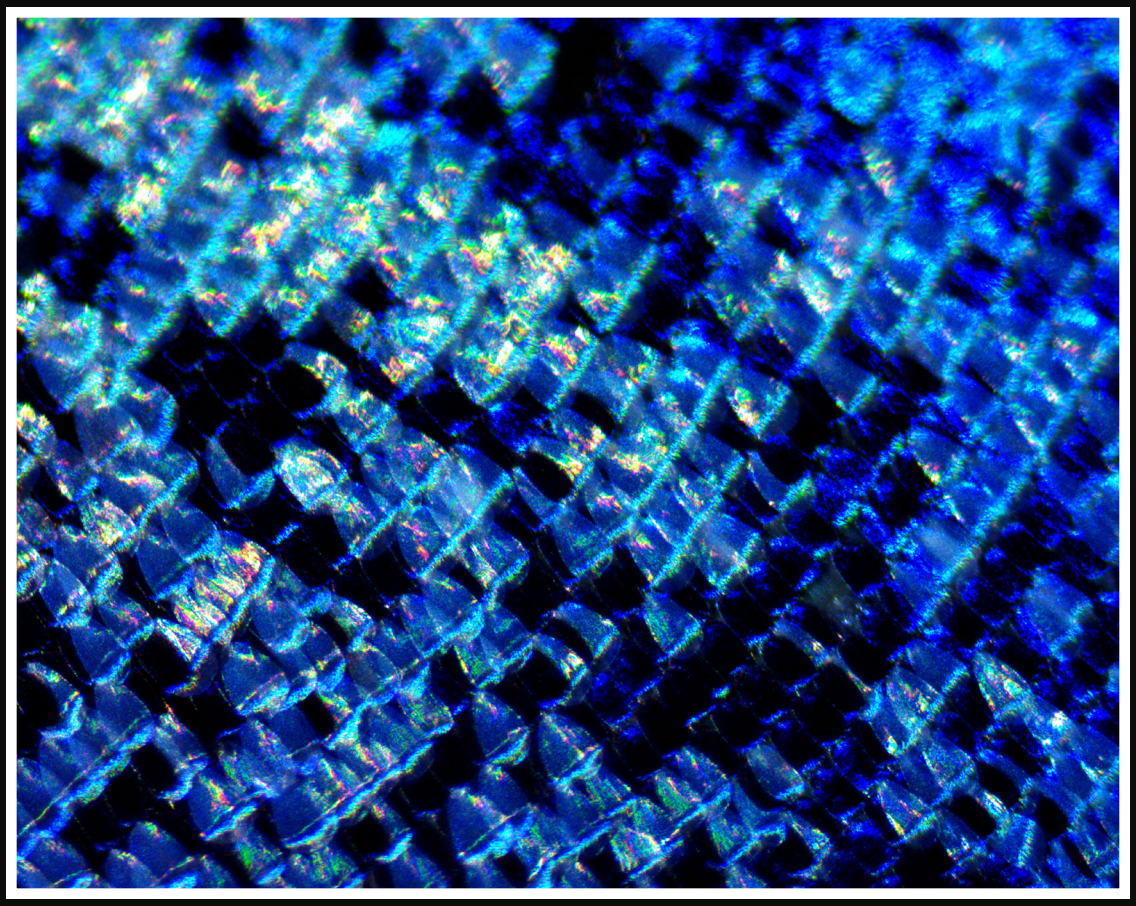
“Vascular Smooth Muscle Cells Stained for Actin (Red) and Dapi (Magenta).”

Jayesh Betala
Semi-finalist, 2017

Cells stained with phalloidin (red) for actin, nuclei for DAPI (magenta), and B-tubulin (green) antibody for microtubules, after drug treatment. Bright staining on cell periphery shows microtubule arrest, which inhibits cell division during mitosis.

Microscope: EVOS, 10X
Technique: Fluorescence

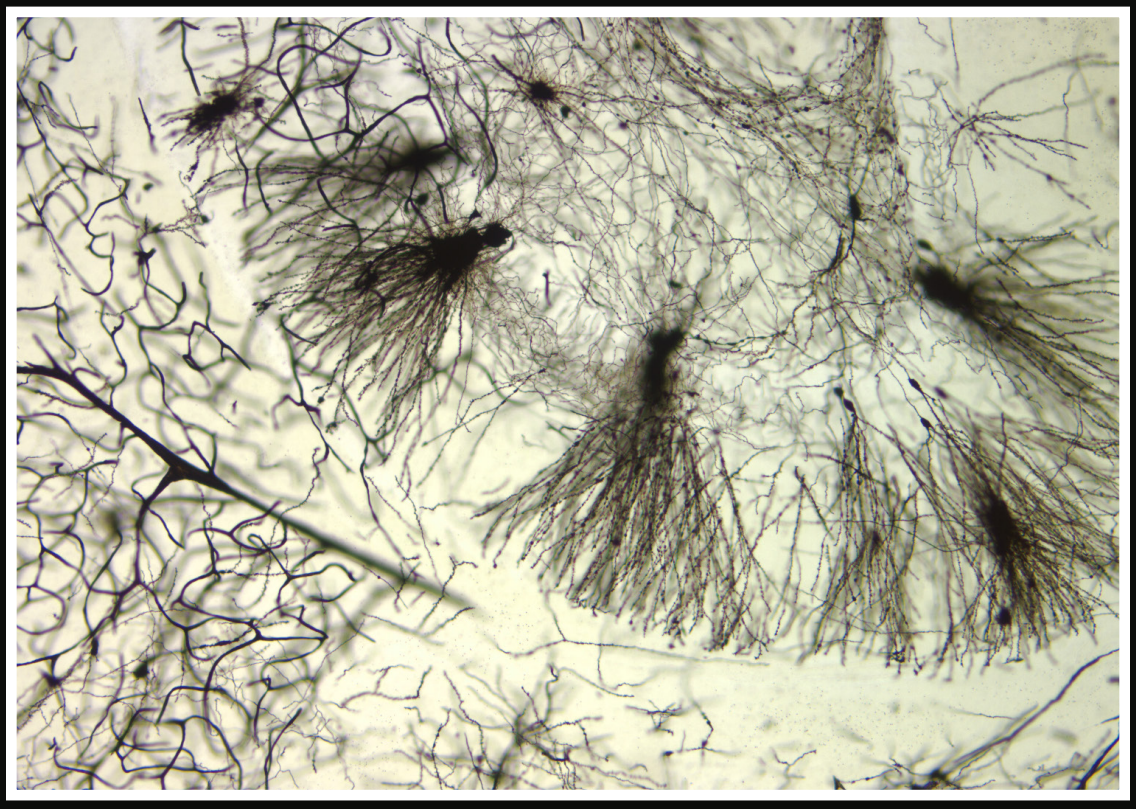
Acknowledgements: Clemson University Bioengineering Department



“Morpho Wing Scales”
Allison Stoiser
Semi-finalist, 2017

When viewed under a microscope, the scales on this Morpho achilles butterfly wing become very evident. The iridescent coloration seen on the tropical butterflies is a result of the structure of the wing scales themselves and not pigmentation.

Microscope: OMAX Full Size Lab Digital Trinocular Compound LED Microscope
Technique: Reflecting Light



“The Mess Behind the Mind (Neurons in the Rat)”

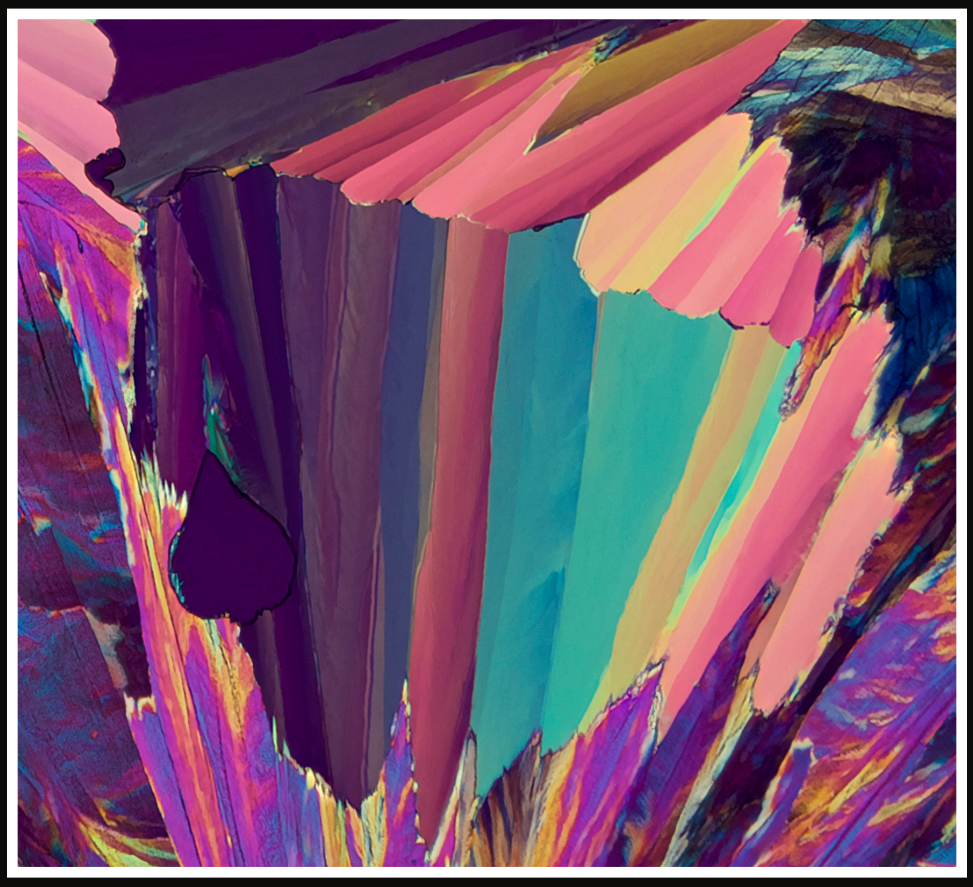
Lisa Stoiser

Semi-finalist, 2017

Neurons in horizontal section of healthy rat brain tissue visualized with Golgi staining at 40X magnification.

Microscope: Olympus, 40X
Technique: Brightfield

Acknowledgements: Bob Stewart

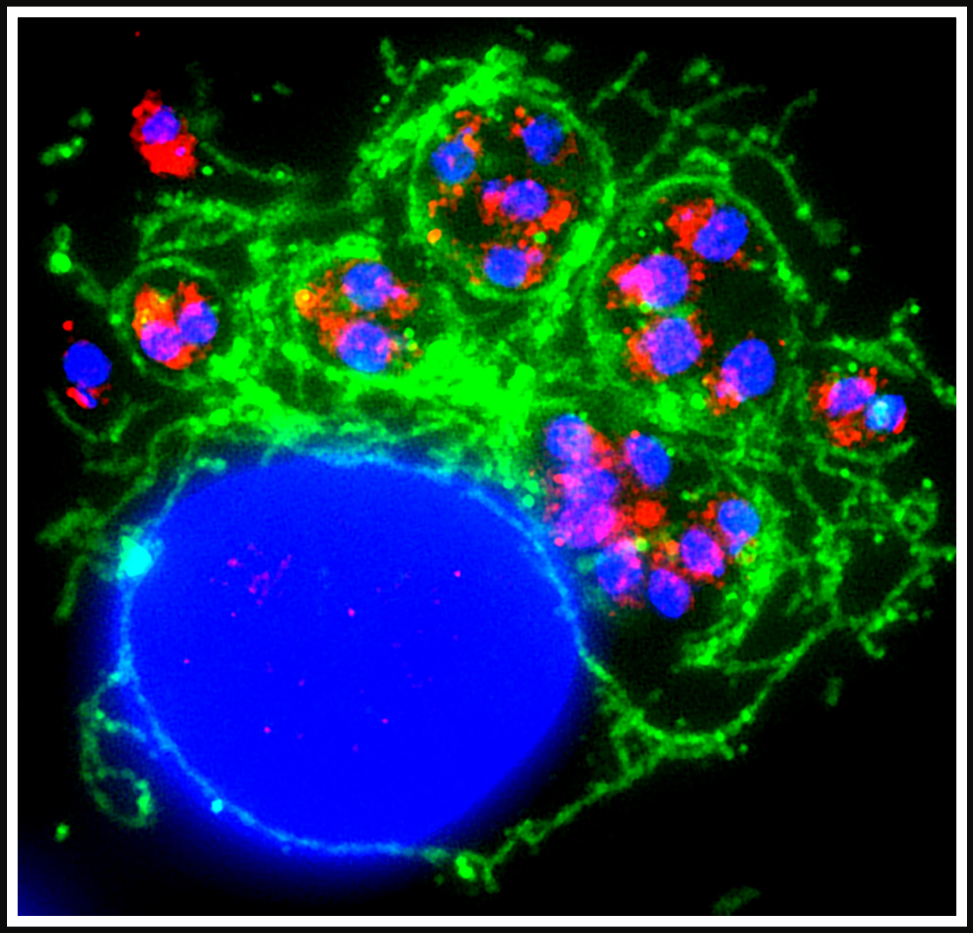


“Vanillin Crystals”
Semi-finalist 2017
Carol Roullard

Vanillin crystals using polarized light with 1st order red.

Microscope: Olympus BX1

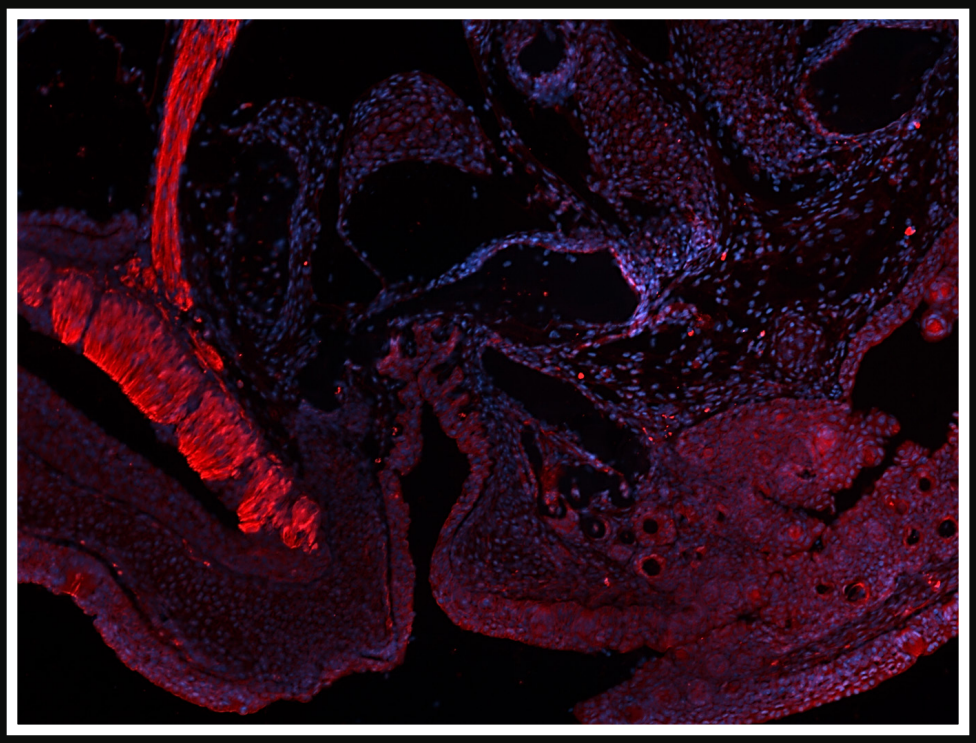
Technique: Polarized Light



“Toxoplasma Paw”
Zhicheng Dou
Semi-finalist, 2017

Toxoplasma gondii is an obligate intracellular human pathogen. The parasites recruit host’s mitochondria (the power plant in mammalian cells) close to their niches to acquire nutrients for supporting their intracellular growth. The nuclei of host and parasites were stained in blue, while one digestive enzyme of Toxoplasma parasites and host mitochondria were probed with antibodies, showing red and green fluorescence, respectively.

Technique: Epifluorescence



“Killfish Olfactory Epithelium”

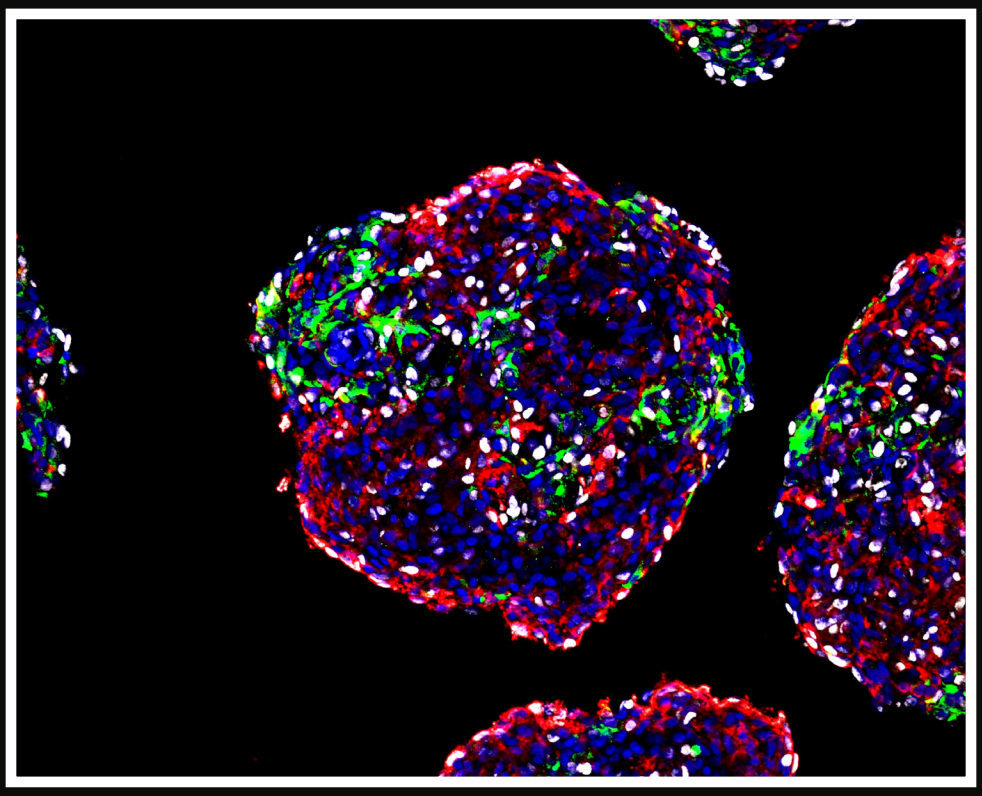
Dana Szymkowicz

Semi-finalist, 2017

Immunohistochemical staining of killfish olfactory epithelium. The olfactory epithelium has three different cell types that each contain one of the three odorant receptors: ciliated cells (bile salts), microvillus cells (food/amino acids), and crypt cells (pheromones). Here, S100 marks crypt and microvillus cells and is stained with a 594 Alexa Fluor.

Microscope: Nikon Widefield, 10X
Technique: Brightfield

Acknowledgements: Dr. Terri Bruce and Rhonda Reigers Powell



“Hippo Signaling Activity in SC-Beta Cells”

Kendall Anderson

Honorable Mention, 2017

20X magnification of a cluster of stem cell-derived pancreatic beta cells. P-Mst1 is represented in green, insulin in red, Nkx6.1 in white, and the nuclei in blue.

Technique: Fluorescence, 20X

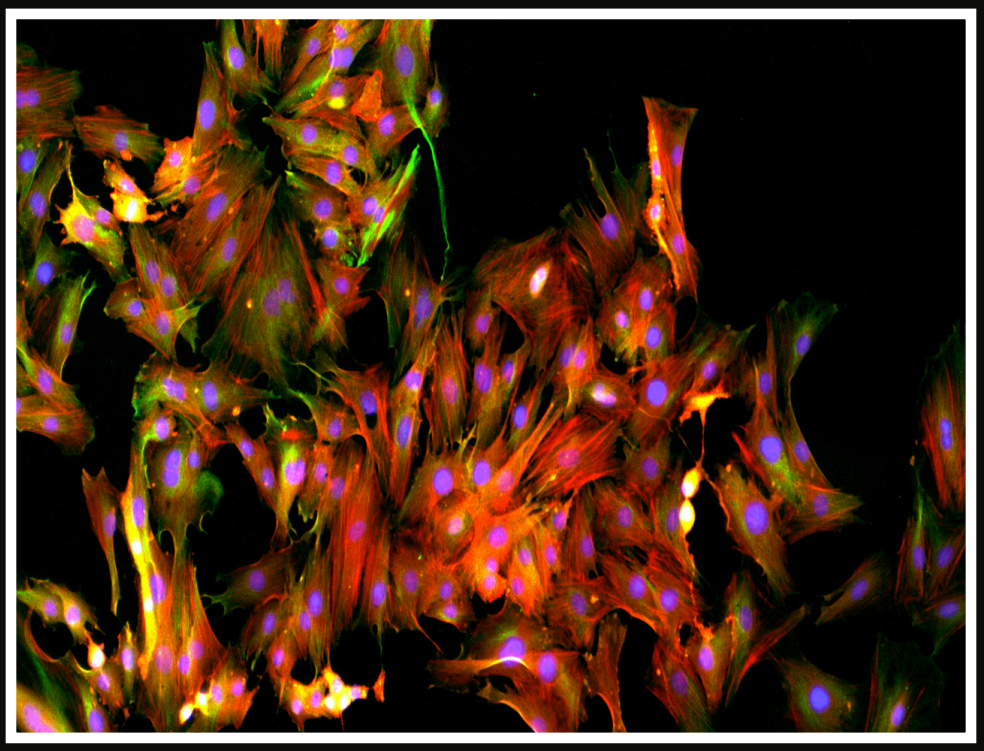
Acknowledgements: Dr. Melton at Harvard University’s Stem Cell and Regenerative Biology Department

“Scales”
Kathryn Grossack
Honorable Mention, 2017

Cut edge of a glass vial.

Microscope: Nikon Eclipse DIC, 10X
Technique: Reflected DIC

Acknowledgements: MVA Scientific Consultants



“Smooth Muscle Cells Stained for Actin (Red), Tubulin (Green), and DAPI (Magenta)”

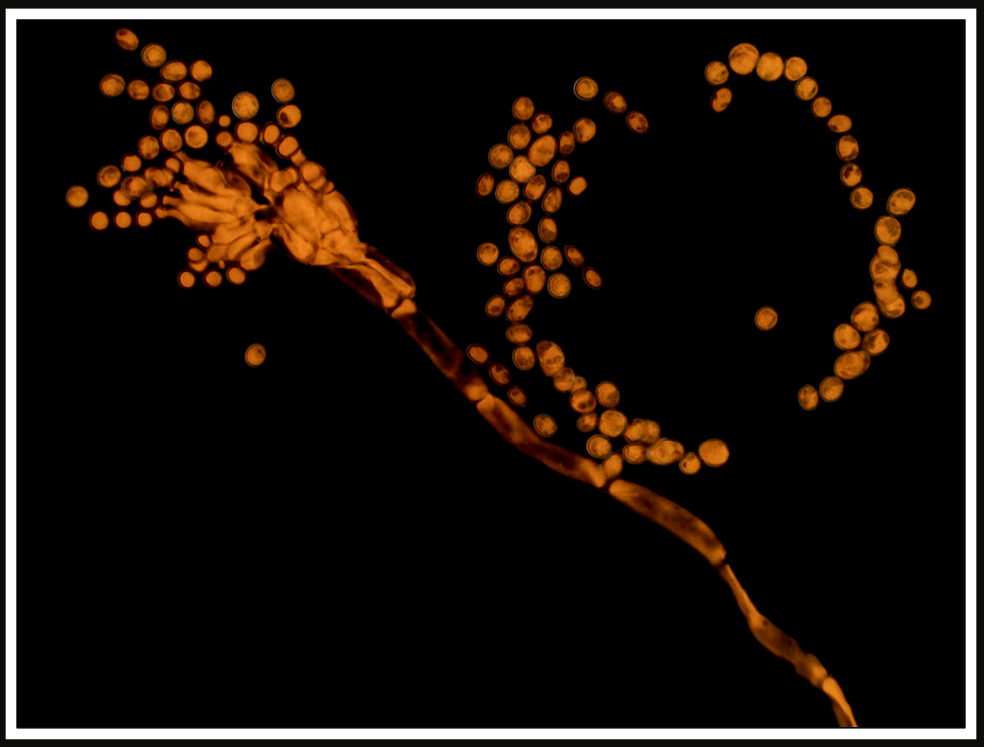
Jayesh Betala

Honorable Mention, 2017

Cells stained with phalloidin (red) for actin, nuclei for DAPI (magenta), and B-Tubulin (green) antibody for microbutules.

Microscope: EVOS, 10X
Technique: Fluorescence

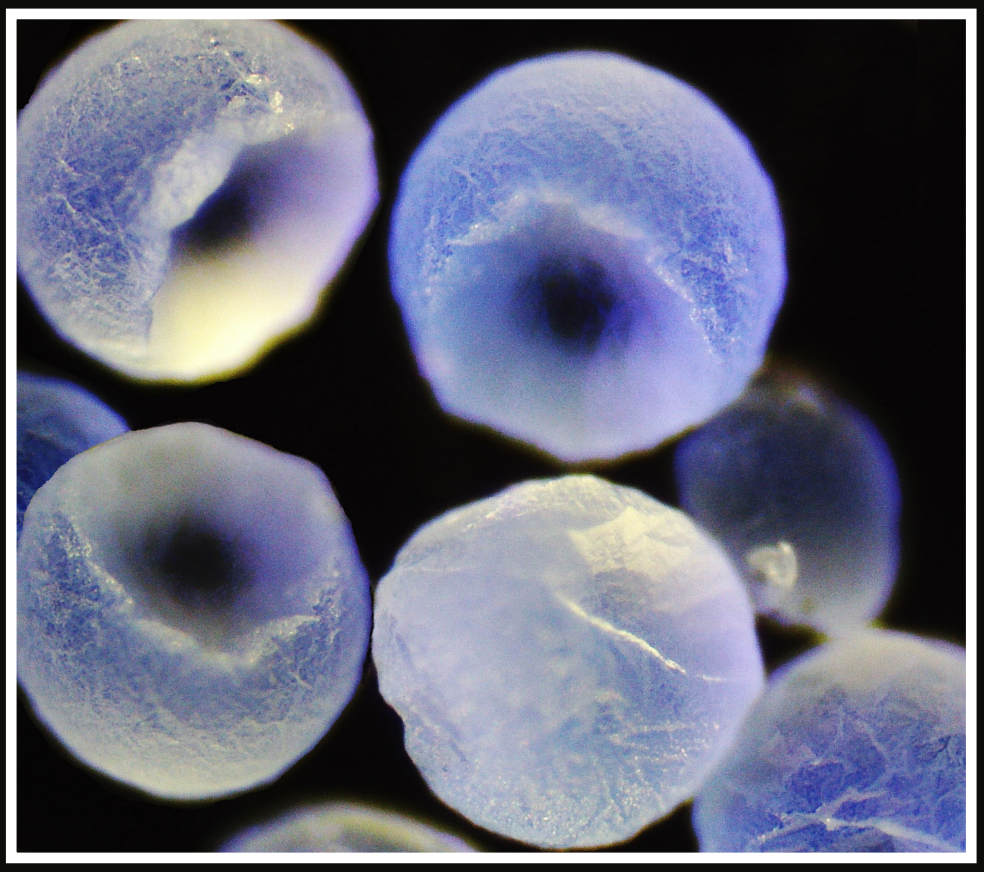
Acknowledgements: Clemson University Bioengineering Department



“Penicillium”
Sergii Dymchenko
Honorable Mention, 2017

Micrograph of Penicillium mold (stained with methyl blue), pictured area is about 160 micrometers wide.

Technique: Brightfield, inverted, 100X



“Lucent Jellyfish”
Valery Bliznyuk
Honorable Mention, 2017

Low degree of crosslinking in polymer microgel particles leads to their collapse after evaporation of a solvent. These particles are made of polyvinyltoluene and contain organic dye, which produces an inside glow effect under UV illumination.

Microscope: Celestron LCD Digital Microscope II, 40X
Technique: Brightfield