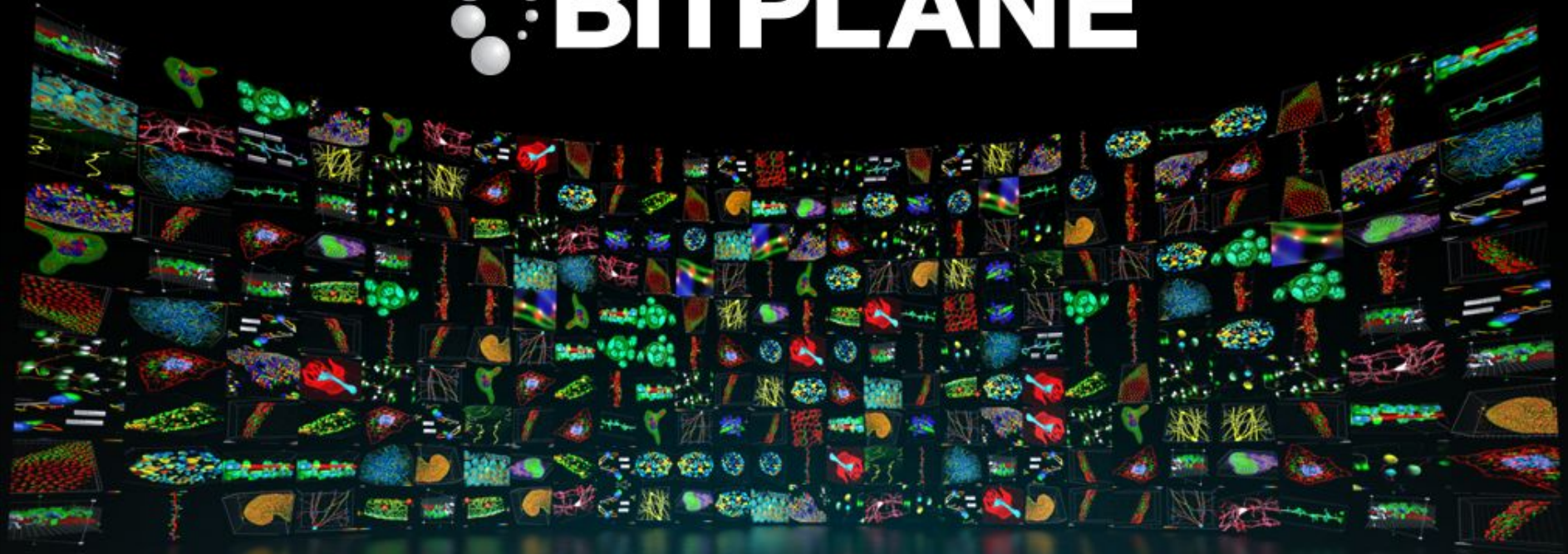




IMARIS

3D/4D图像分析软件

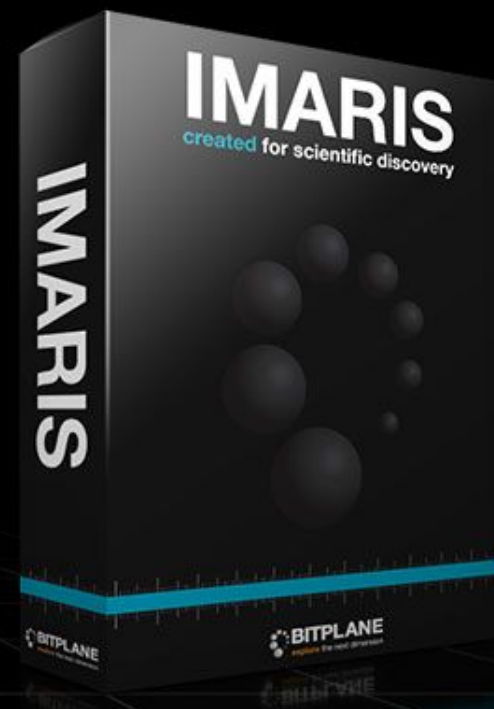
南希
应用支持

asiasupport@bitplane.com

explore the next dimension

内容

- Imaris 简介
 - Imaris 模块
 - 三维图像中的重要信息
- Imaris 的应用
- Imaris 开放资源



What is Imaris?

IMARIS®

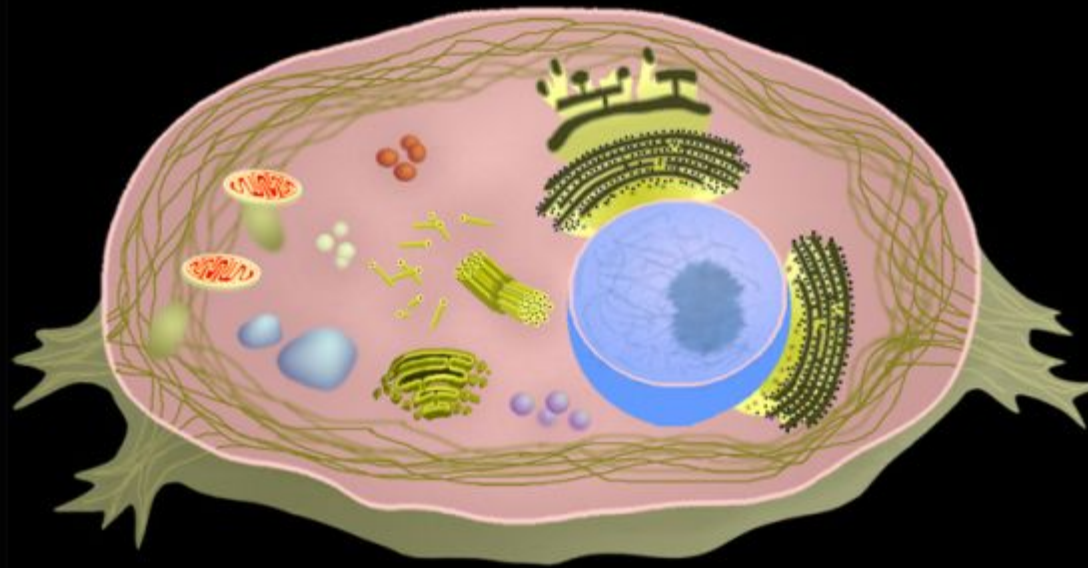
3D and 4D Real-Time Interactive Data Visualization

Imaris is Bitplane's core scientific software module that delivers all the necessary functionality for data visualization, analysis, segmentation and interpretation of 3D and 4D microscopy datasets. Combining speed, precision and ease-of-use, Imaris provides a complete set of features for working with three- and four-dimensional multi-channel images of any size, from a few MB to multiple GB.

Imaris is a powerful tool for the visualization, analysis and interpretation of multi-channel 3D and 4D datasets.

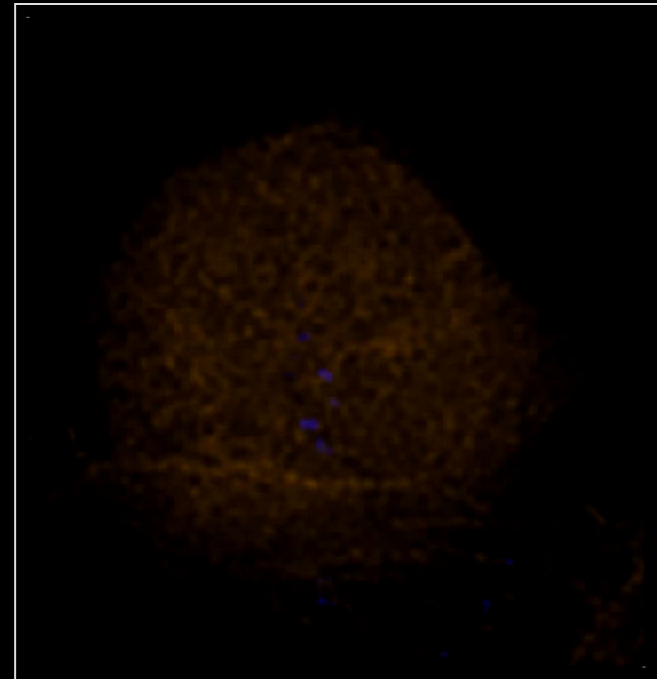
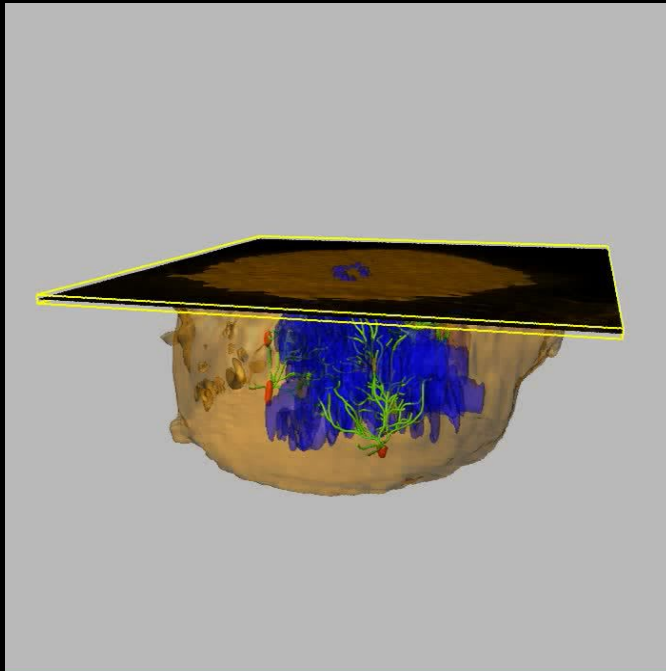
为什么要 3D?

-细胞是三维的结构

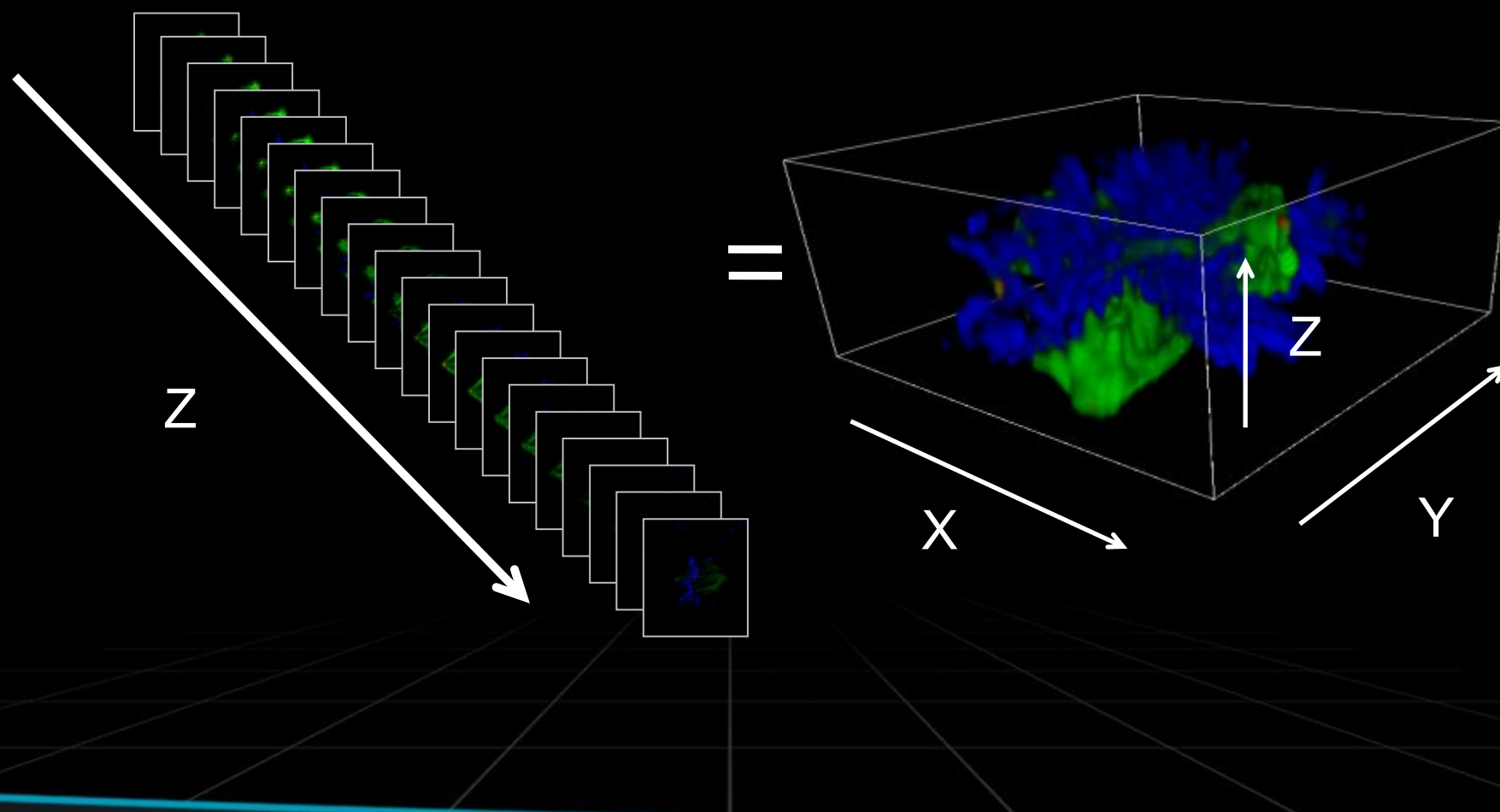


如何重构三维？

将所有光学切片叠加在一起构建三维结构



如何构建三维？



如何构建三维？

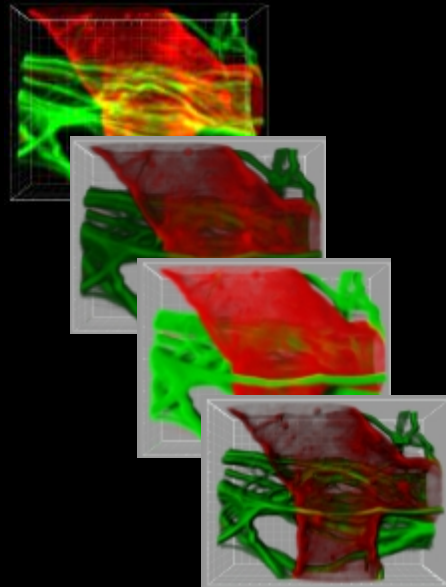
直接渲染：使用原始信息

Max Intensity Projection

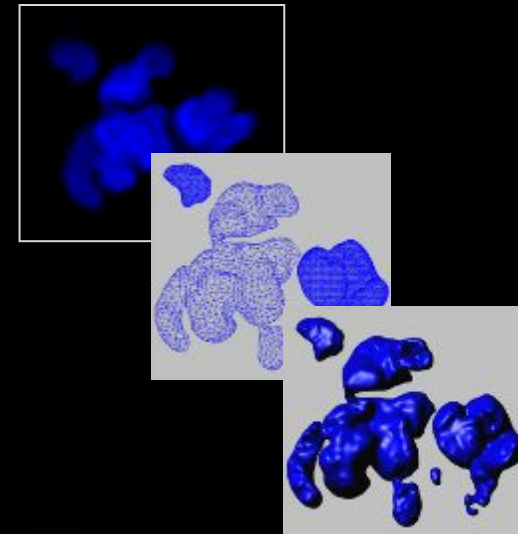
Blend

Shadow Projection

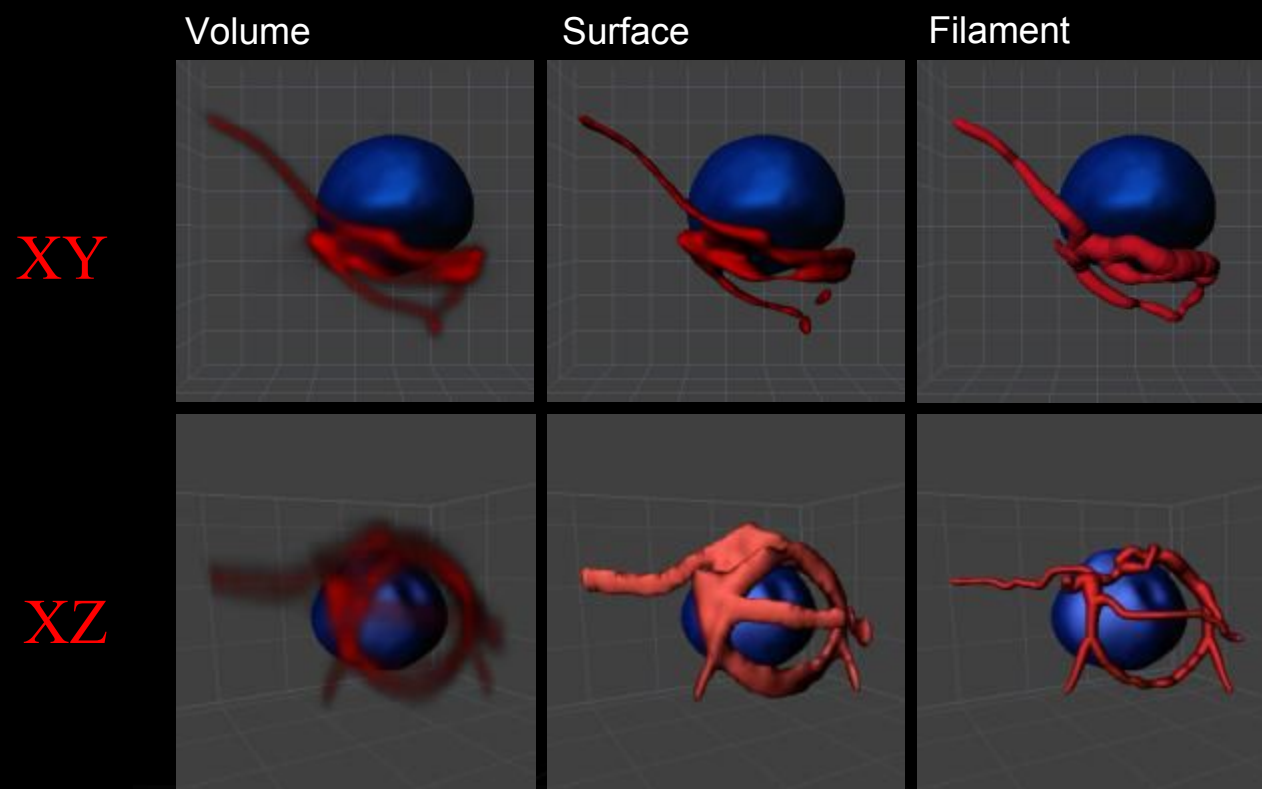
Normal Shading



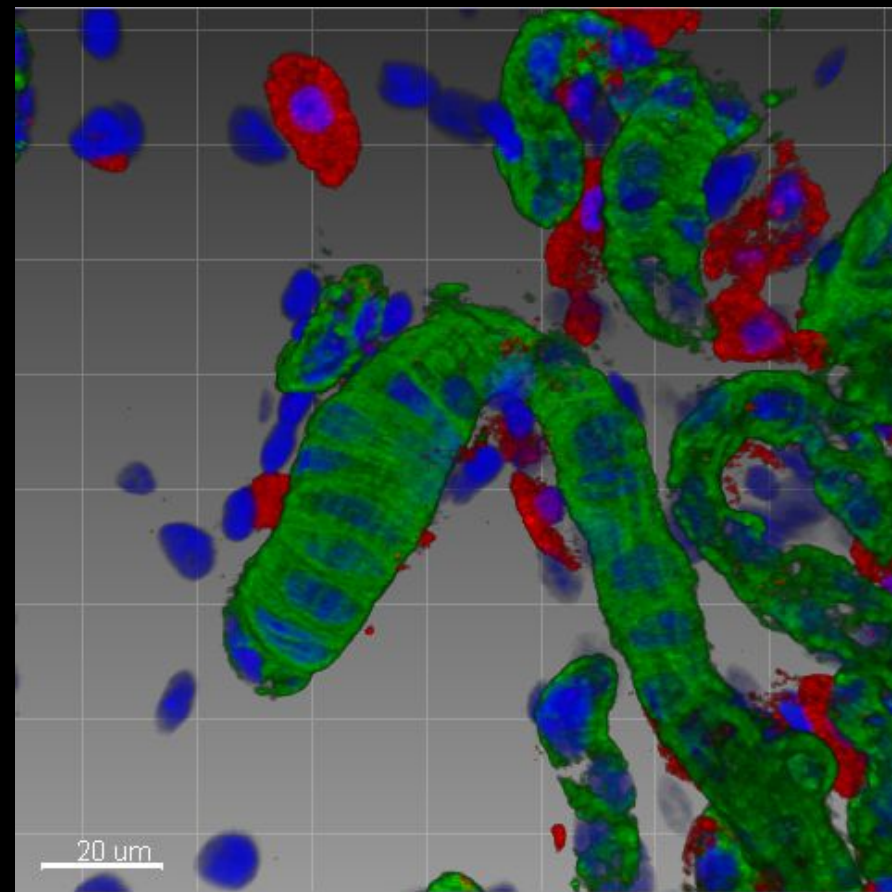
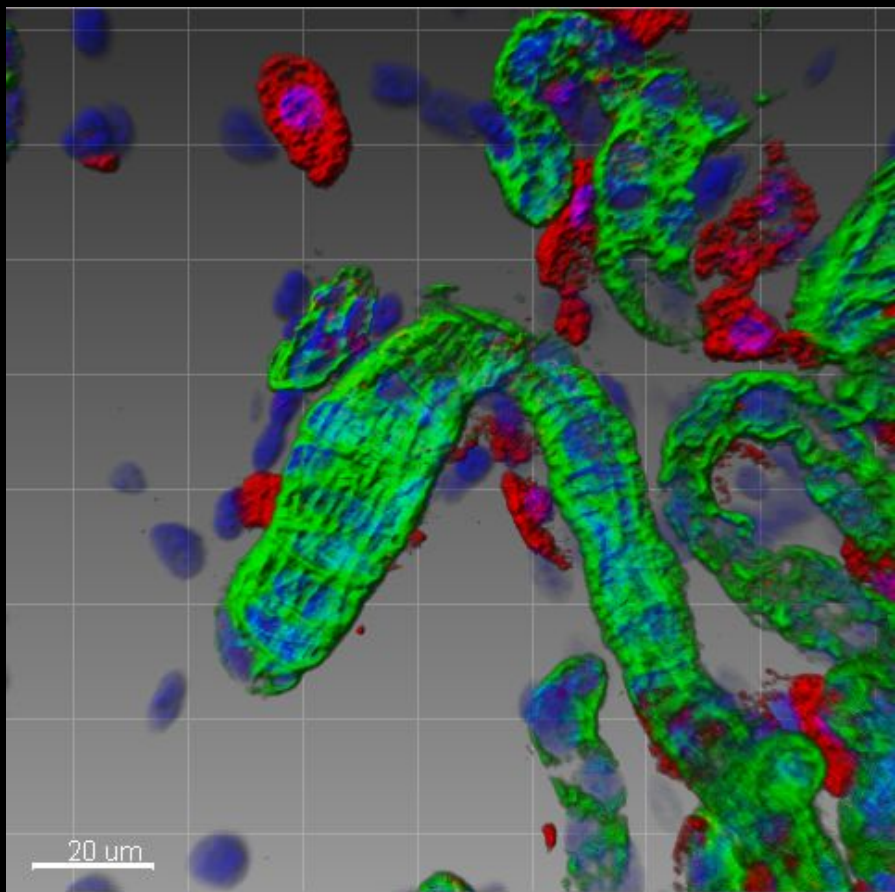
间接渲染：基于光强的表面渲染
Iso surface



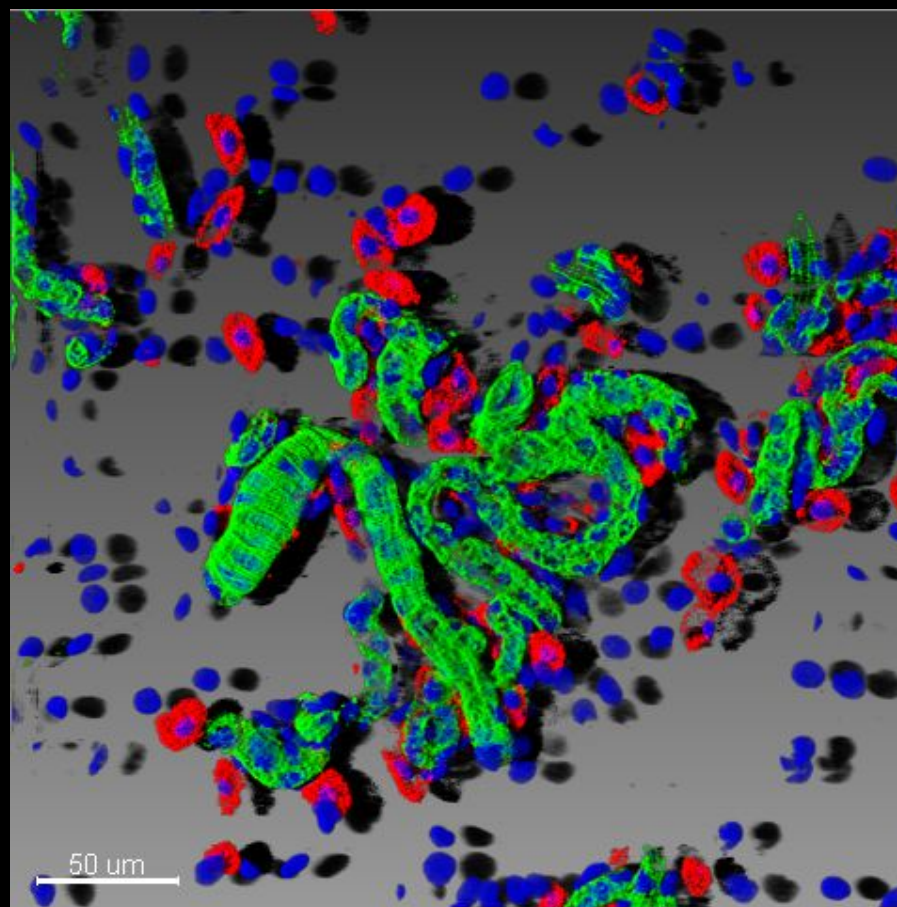
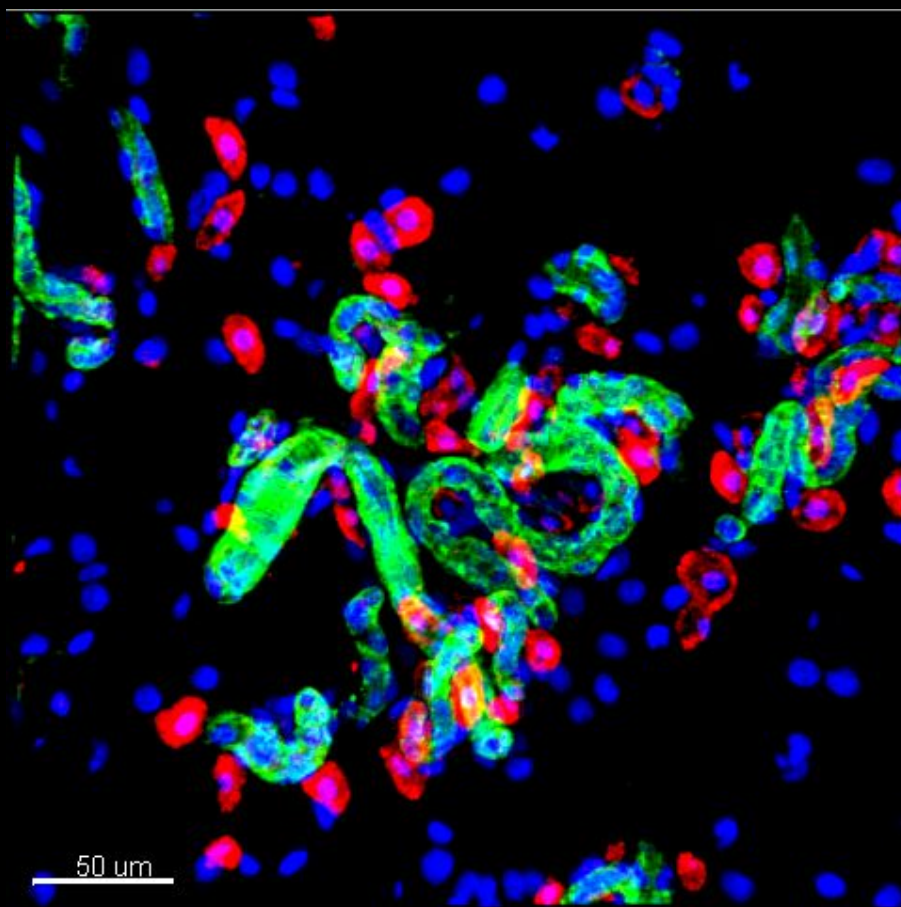
如何构建三维？



Imaris 图像渲染



Imaris 图像渲染



三维图像中的重要信息

Live cell tracking

2D over Time

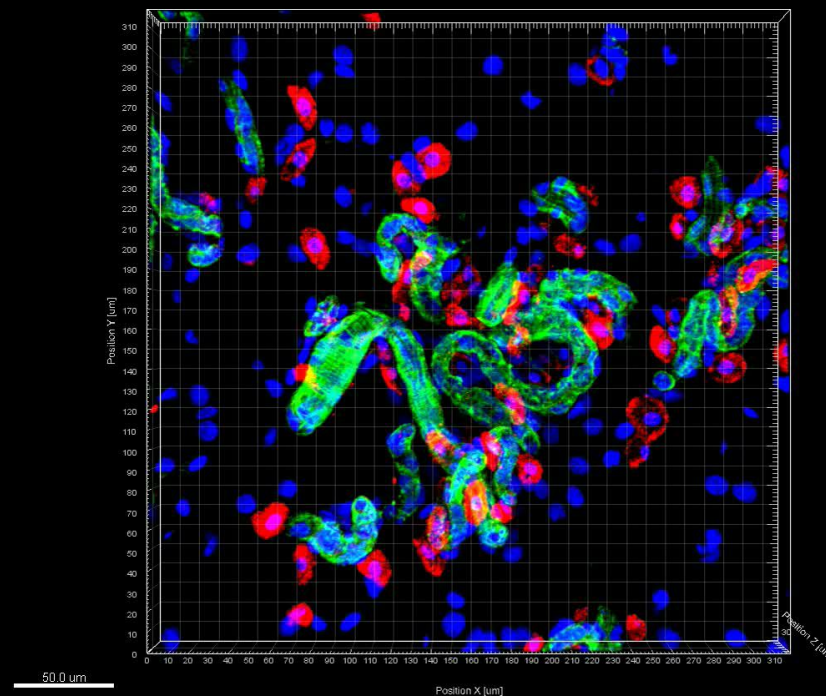
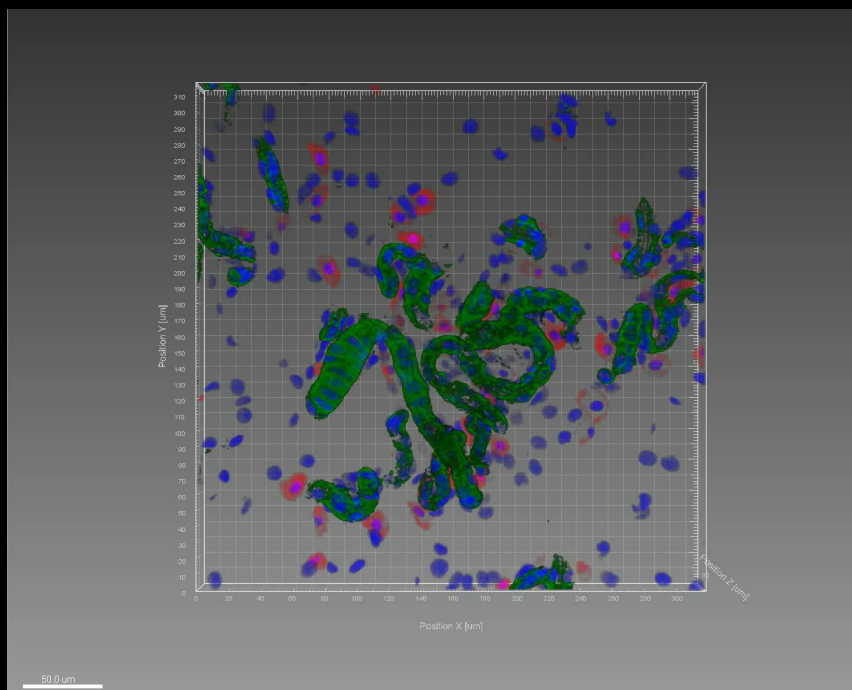
 Time

 Time

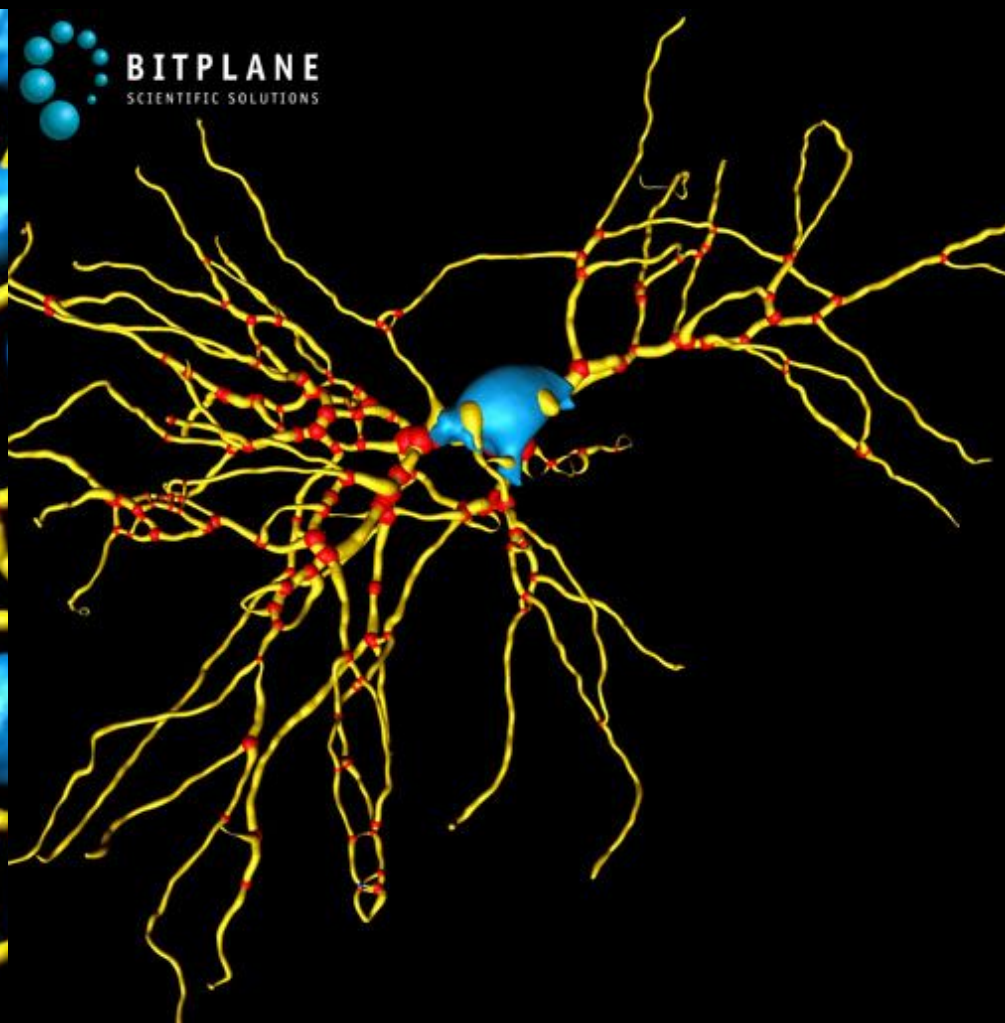
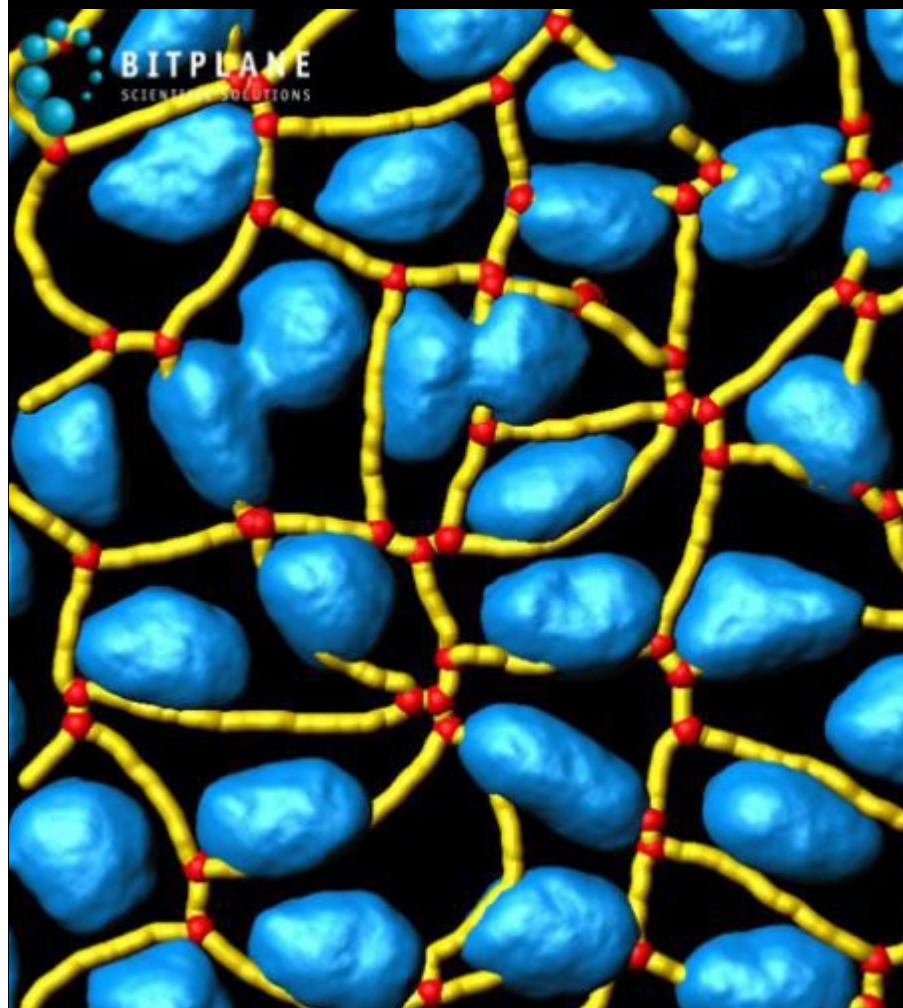
Imaris 统计分析

Value	Unit	Category
1653	um ³	Surface
797	um ³	Surface
747	um ³	Surface
1343	um ³	Surface
912	um ³	Surface
1345	um ³	Surface
1776	um ³	Surface
305	um ³	Surface
1019	um ³	Surface
2369	um ³	Surface

结果输出

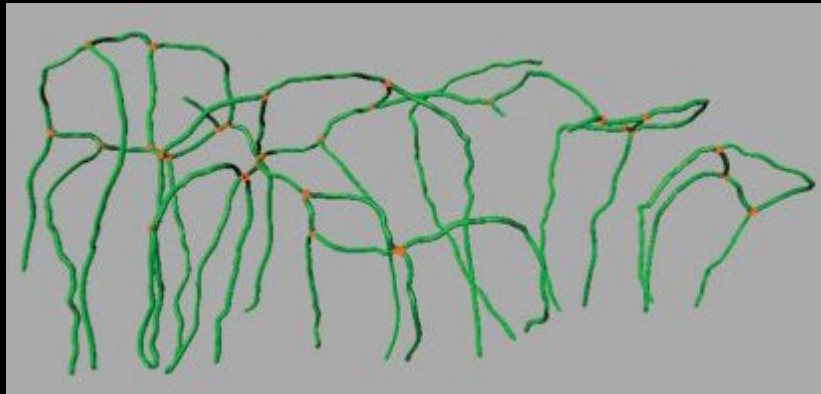


Imaris Filament Tracer

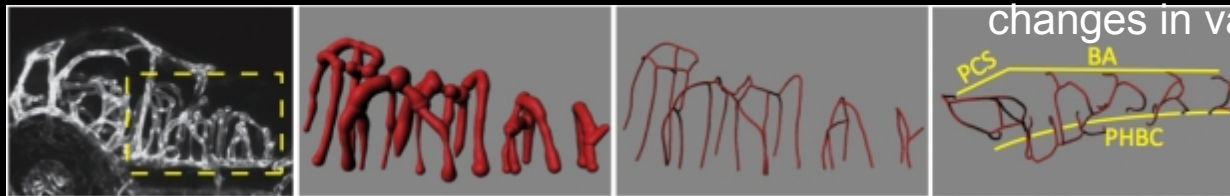


Filament Tracer – publications

🌿 三维空间中血脑屏障的研究

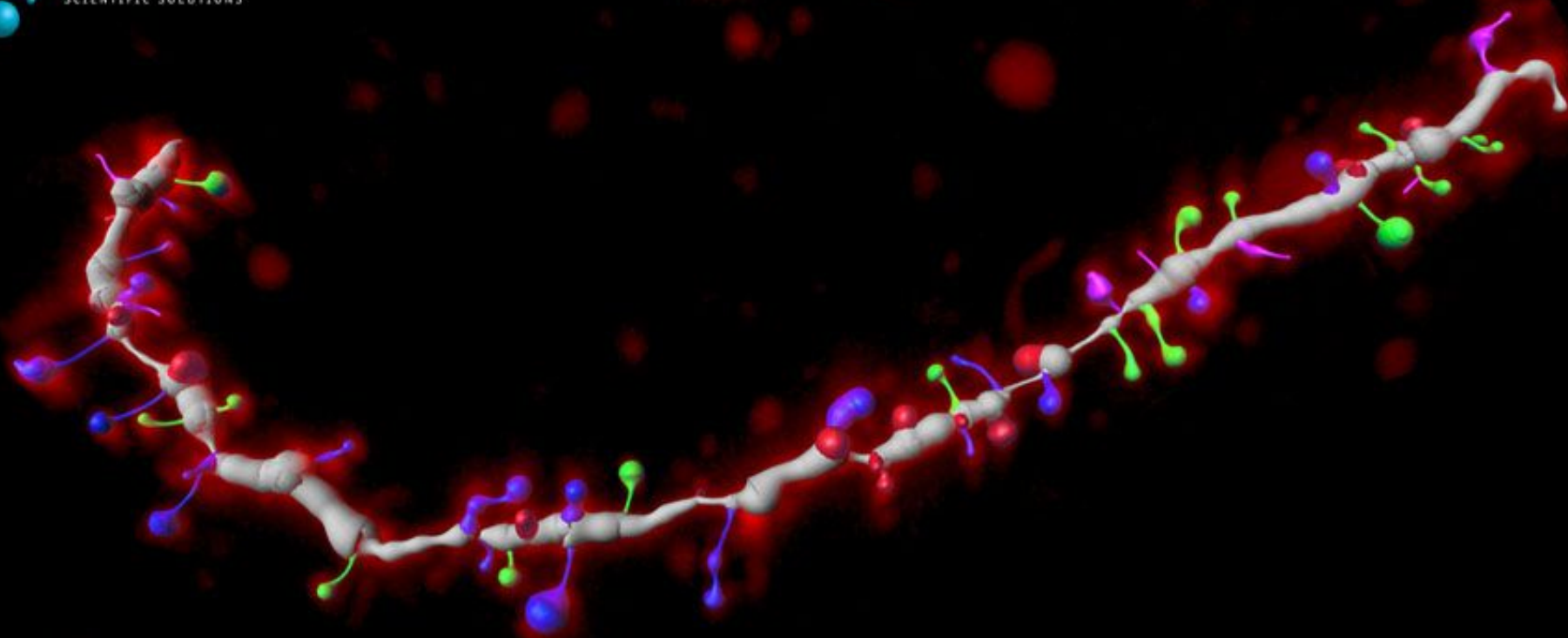


- Many neurodegenerative diseases involve disruption of the blood-brain barrier, and drugs that can treat central nervous system diseases must pass through the barrier.
- Imaris let the researchers examine the phenotype of the zebrafish in three dimensions and identify changes in vascular density.



🌿 Developmental Cell, Volume 22, Issue 2, 14 February 2012

Filament Tracer – publications



valasels,

Imaris 可用于哪些应用？

活细胞

目标物的追踪及动态分析
强度/体积等随时间的变化规律
细胞周期研究

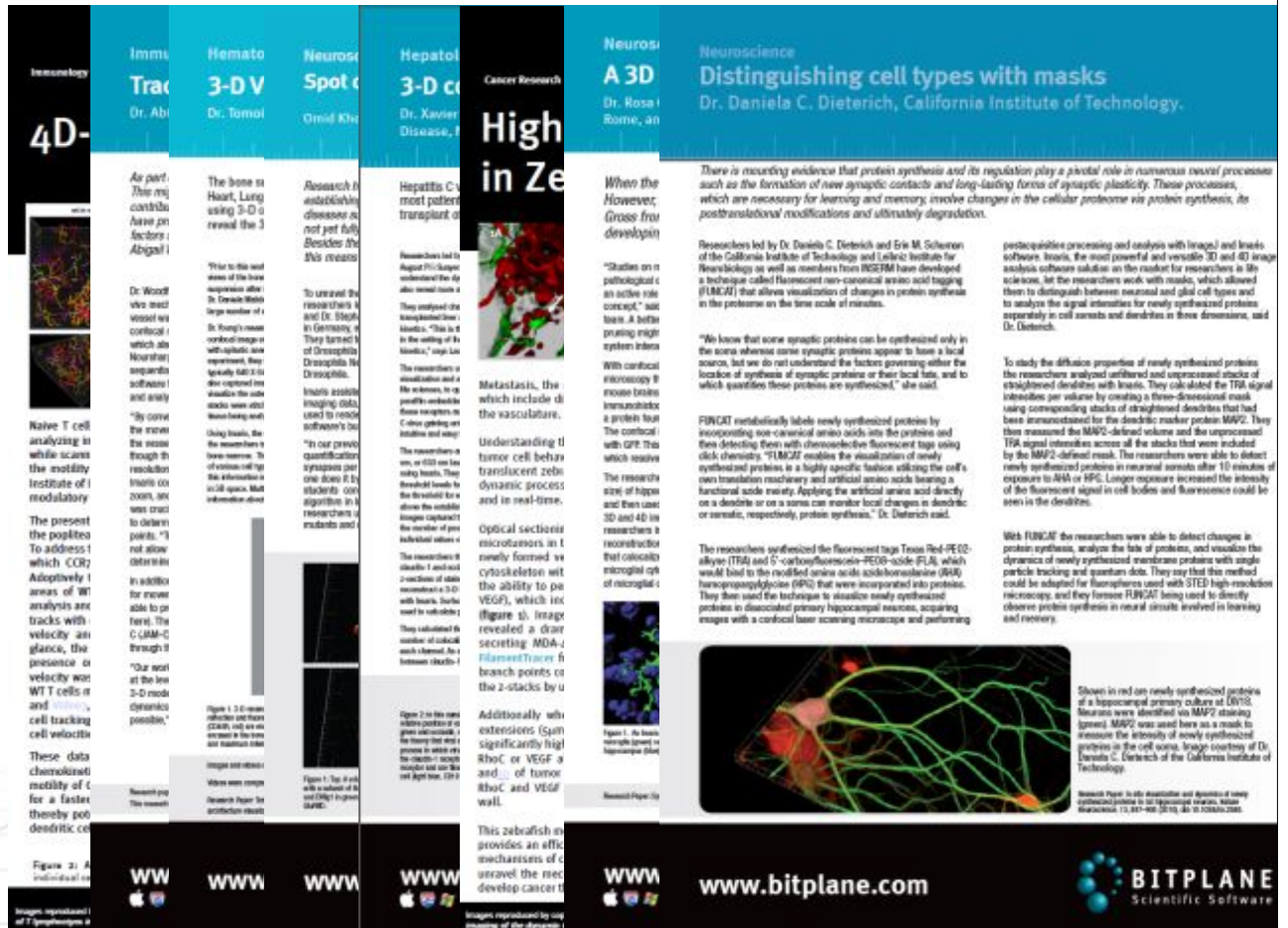
细胞及其组分的研究

体积强度的分析

囊泡/细胞核的检测及计数
3D共定位分析
以细胞为单位的分析统计

神经元追踪

全自动的树突/树突棘检测
树突棘的密度及形态分析

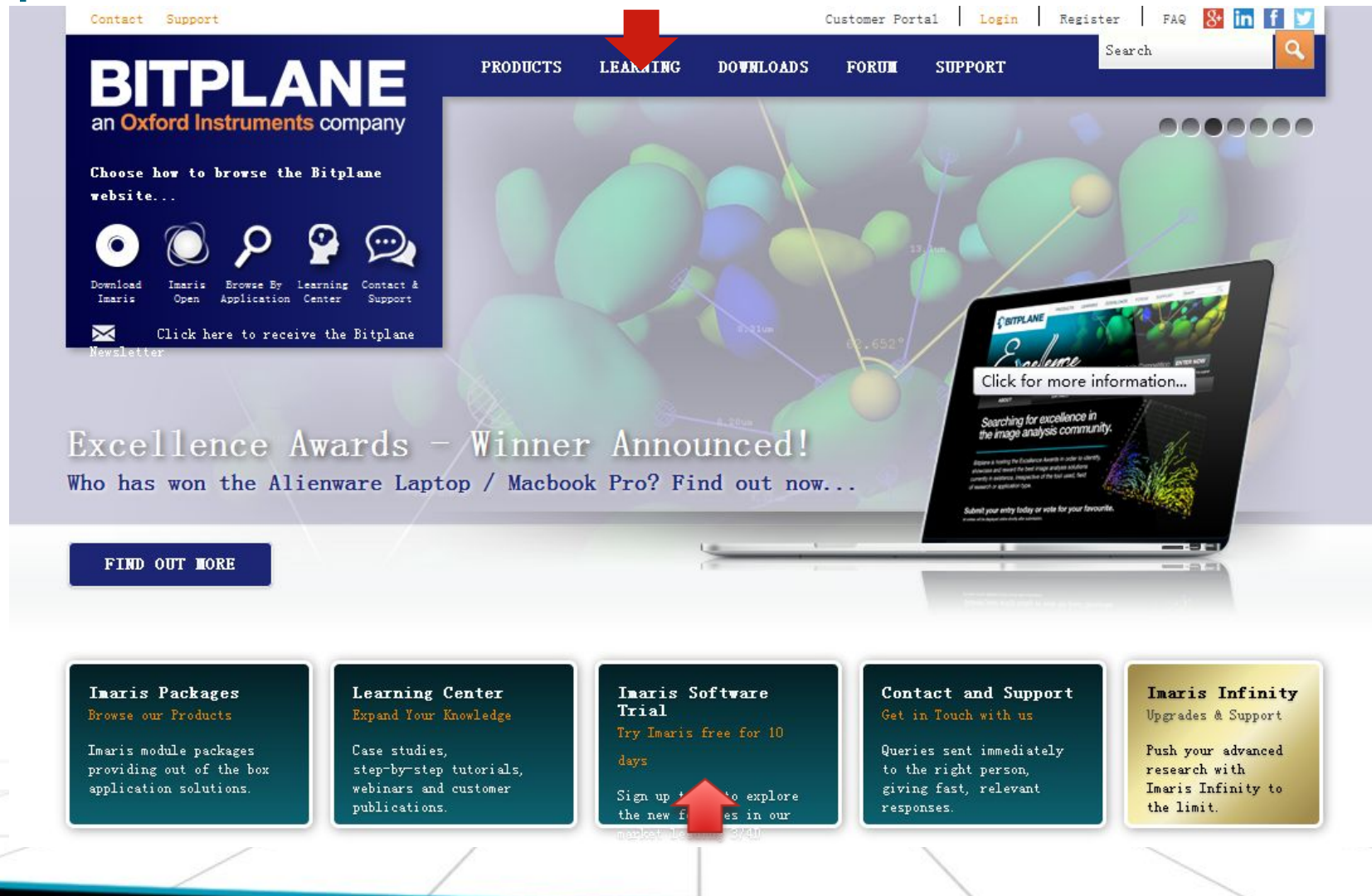


The collage features several scientific papers and images illustrating the application of Imaris software in various research fields:

- Immunology:** A paper titled "4D-Imaging of T-cell activation" by Dr. Abi, showing T-cell activation and cytokine release.
- Hematology:** A paper titled "Hemato 3-D V" by Dr. Tomoi, showing the bone marrow microenvironment.
- Neuroscience:** A paper titled "Neuroscience Spot" by Ornid Kh, showing the analysis of neuronal morphology.
- Hepatology:** A paper titled "Hepato 3-D V" by Dr. Xavier, showing the analysis of liver tissue.
- Cancer Research:** A paper titled "High in Ze" by Dr. Xavier, showing the analysis of tumor cells.
- Neuroscience:** A paper titled "Neuroscience A 3D" by Dr. Rosa, showing the analysis of neuronal morphology.
- Neuroscience:** A paper titled "Distinguishing cell types with masks" by Dr. Daniela C. Dieterich, showing the analysis of neuronal morphology.

The collage also includes several images of neurons and cells, demonstrating the software's ability to analyze complex biological structures.

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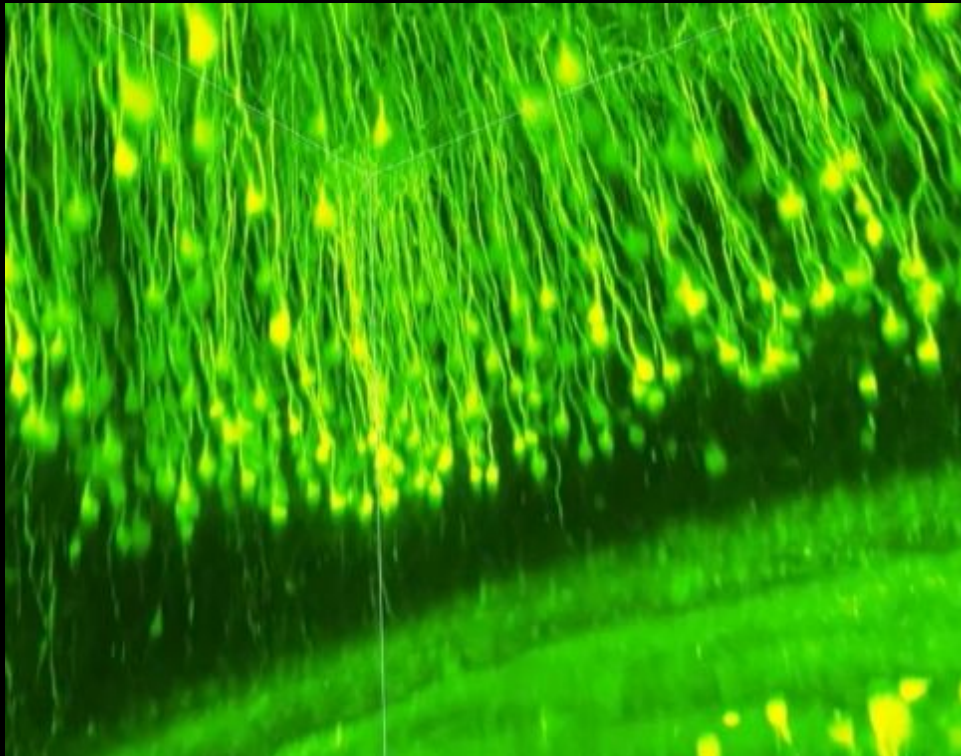
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近期发表内容



- Clarity - by one of the founders of optogenetics, Karl Deisseroth, Stanford University Stanford University, published in Nature in April 2013.
- They were making 3D images of intact adult mouse brain samples and Imaris was used for the neurite tracing.
- The video is available on YouTube
<http://www.youtube.com/watch?v=c-NMfp13Uug>

非常感谢！

