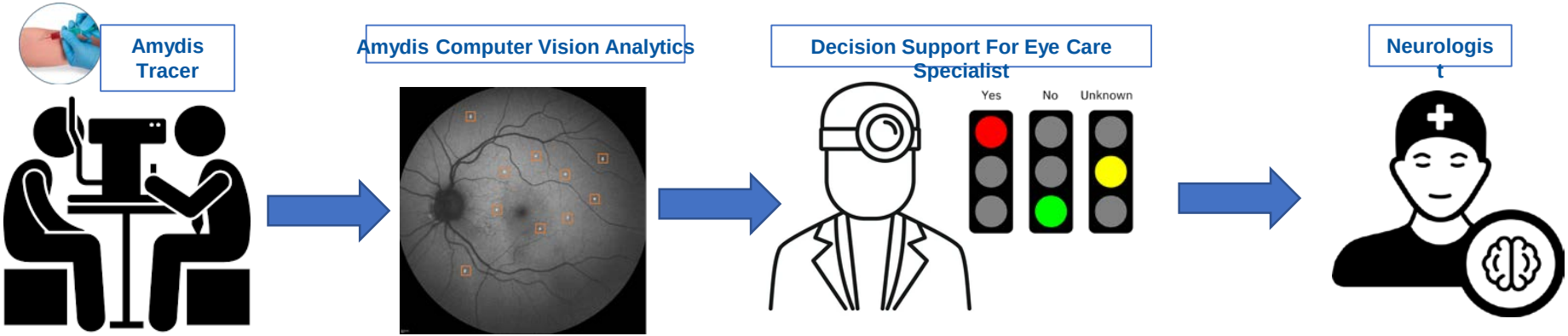
Data Market

Amydis

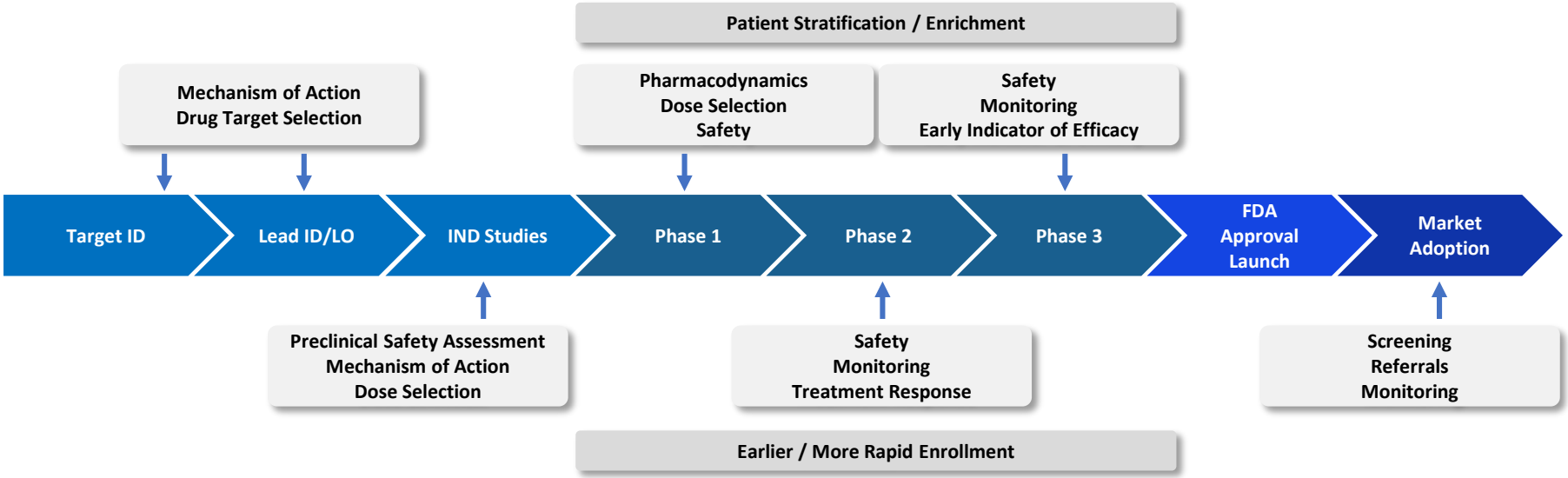
Data Analytics will Provide Decision Support to Doctor

Amydis

Amydis real-time and automated computer vision analytics provides decision support to doctors by indicating presence or absence of biomarkers within minutes and catalyzes early referral to neurologist for treatment



Retinal Tracer Can Help Each Stage in Drug Development



Surrogate biomarkers are being employed by pharma to get FDA drug approvals (example Aβ biomarker and Aducanumab).

Data Analytics will Support Pharma

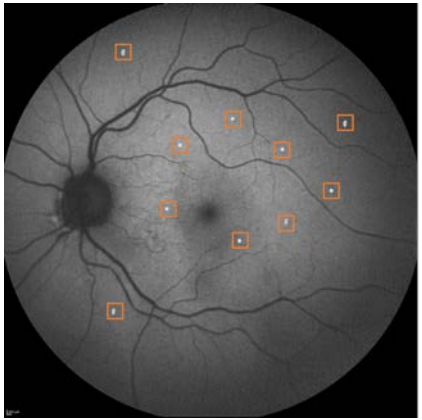
Amydis real-time automated computer vision software analytics provides quantification & morphology analytics for drug development and clinical trials

Imaging Devices

Commercially Available Devices

Amydis Tracer

Scan



Amydis Computer Vision Analytics

Analyze tracer change after treatment

	MaskedImage	Circularity	Elongation	TotalIntensity
1		1.08068	0.248258	13.9882
2		1.16083	0.0386247	7.57255
3		1.02065	0.388404	7.39216
4		0.919693	0.266289	18.2078
5		0.997923	0.219491	5.34902
6		1.05424	0.404531	7.43529
7		1.02364	0.0727517	13.3451

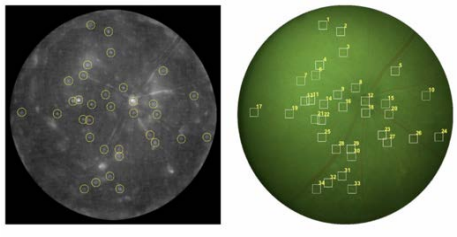
Building 3D Molecular Biomarker Retinal Maps To Disease Differentiation

Amydis Tracer Maps + OCT Maps + OCTA Maps = Enhanced AI-Based Analytics

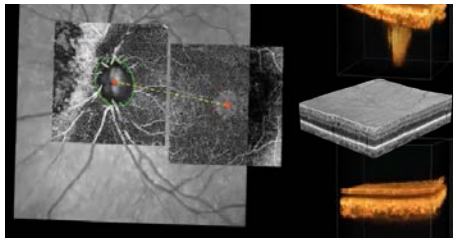
Amydis tracers:

- Provide high signal-to-noise images of disease-related molecular biomarkers → Current technologies trying to detect and quantify digital molecular biomarker images have low signal-to-noise
- Facilitate 3D mapping of molecular biomarkers relative to retinal structural and vascular changes → Enhance understanding of pathophysiology of diseases
- Enable generation of new dimension in multimodal maps that can be precisely registered over time → Track evolution of changes in molecular biomarkers, structure, and vasculature

Amydis Retinal Tracer Images



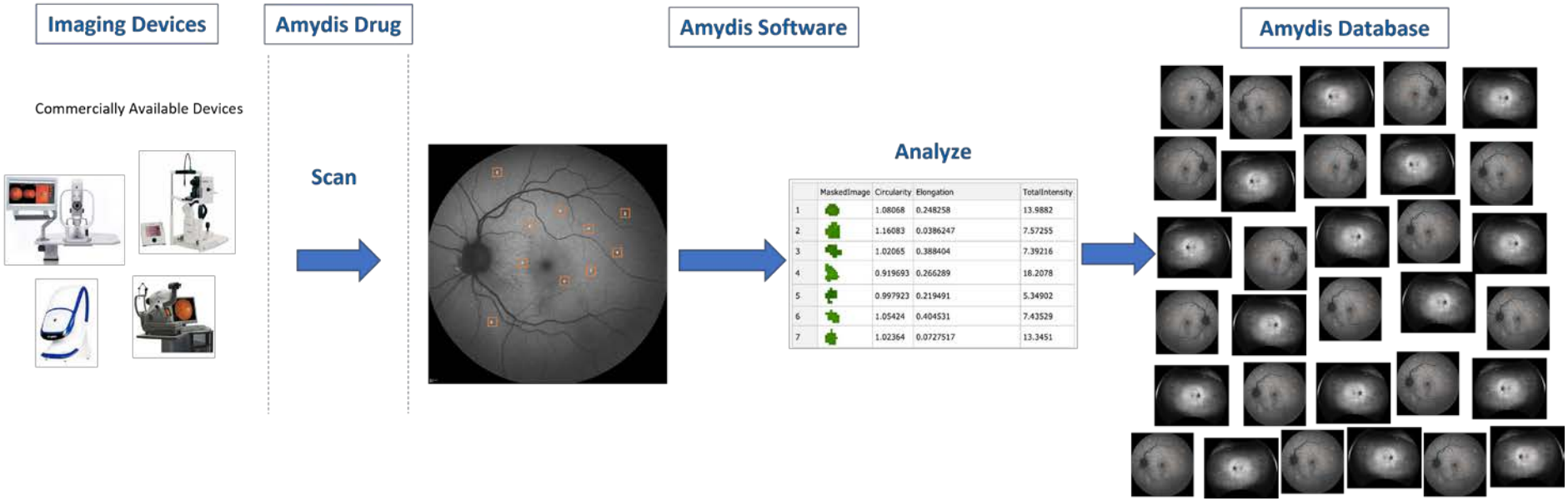
Retinal Structure & Vascular Maps Derived from OCT and OCT-A Scans



Enhanced AI-Based Analytics to Build Unique Data Repository

Amydis

Amydis ocular tracers lead development of unique Big Data retinal image repositories that enable AI-based analytics to detect and differentiate human diseases through the eye



Develop Automated Detection & Quantification of Fluorescent Signals

Amydis analytics:

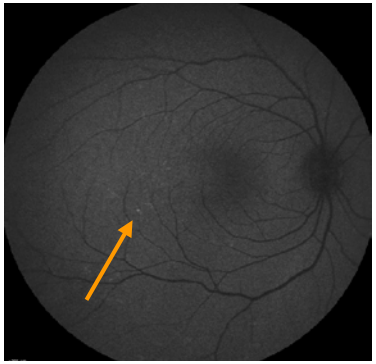
- Develop software for automated detection & quantification of hyper-fluorescent signals using NHP & Human fundus fluorescent (FF) images collected to date → Convert these data into information, i.e., structured data
- Imaging approach: Acquire triplicate images before injection & triplicate images post injection to enhance signal-to-noise ratio as FF image quality varies image-to-image due to impact of illumination and focus
- Analysis approach: Extract a digital signature from each image, which contains distinct features using computer vision
- Computer vision metrics: brightness, morphology, localization within the retina, district key-point features → Amydis' proprietary software that will be FDA approved
- FF image data curated with FDA-approved software will be analyzed with deep learning convolutional neural network algorithms → disease classification & staging, & patient stratification
- FF data will also be registered with OCT and OCTA data to create data repository for AI analytics → Disease differentiation & monitoring → link between molecular, structural and vascular changes
- Database image storage → rapid delivery of a searchable pool of informative analytics

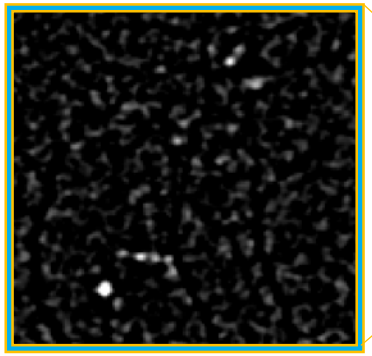
Build Database & Identify Imaging Patterns with Artificial Intelligence

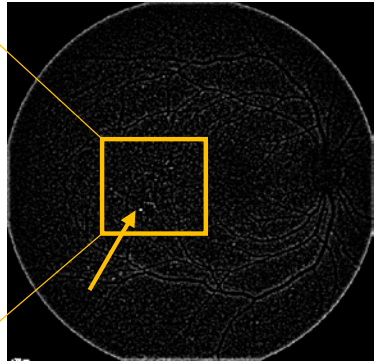
Amydis

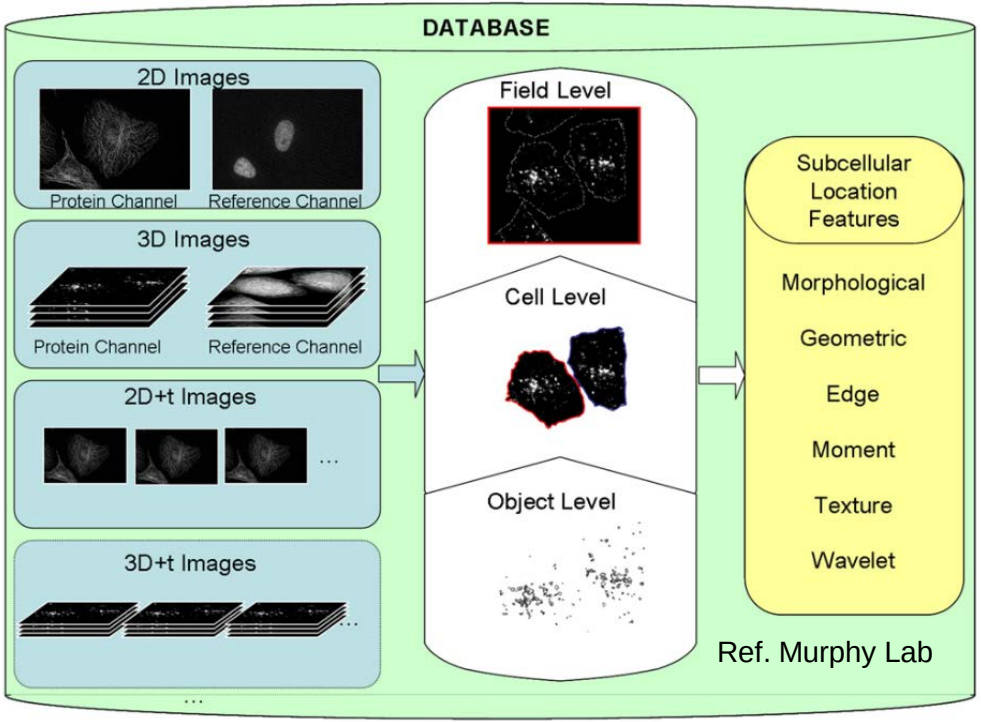
Amydis is building a database of images & as we acquire images with signal after the injection, indicative of disease, we will stratify based on patterns using deep learning & machine learning techniques

Analysis of baseline fundus image: Difference of Gaussians band-pass filter, which matches the optics, removes camera noise & background fluorescence

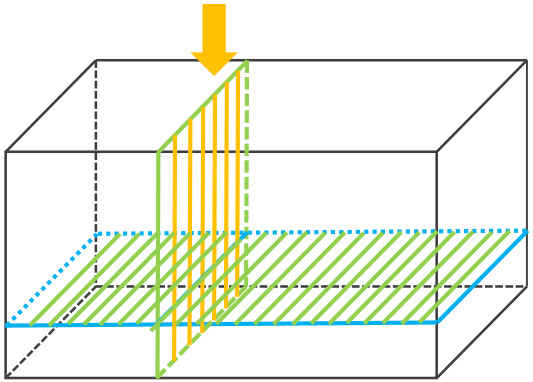








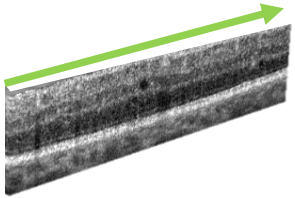
3D Mapping of Fluorescent Fundus with Cross-Sectional OCT Images



Axial Plane

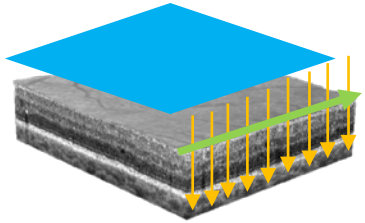
A-scan = Single Point Scan (Fluorescent Fundus)

B-scan = Cross Sectional Image (OCT)

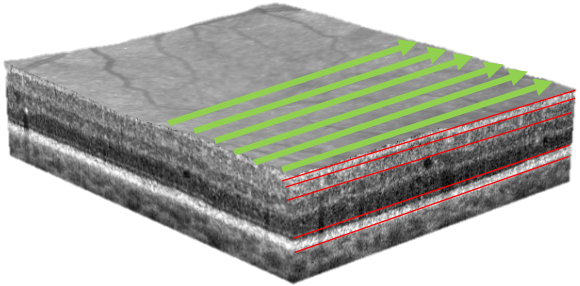


Transversal Plane

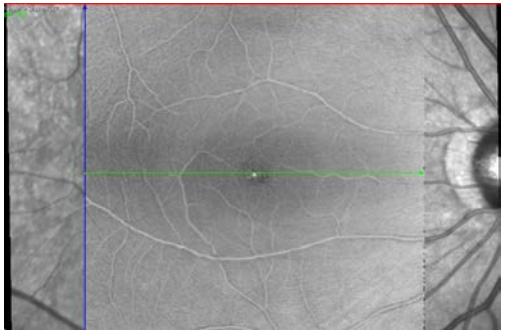
C-scan = En Face



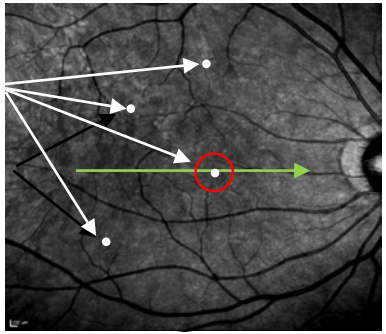
A cube of data is created by a series of B-scans



En face Structural OCT Map



Fundus Fluorescence (FF) Image

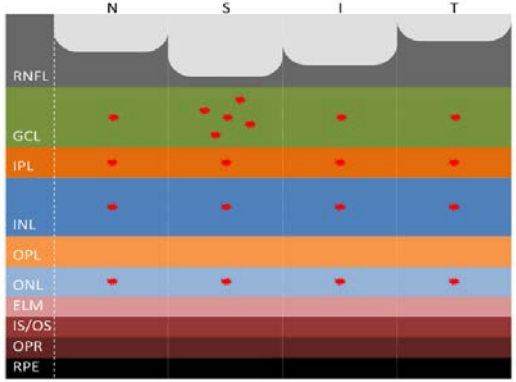


Hyper-Fluorescent Proteins

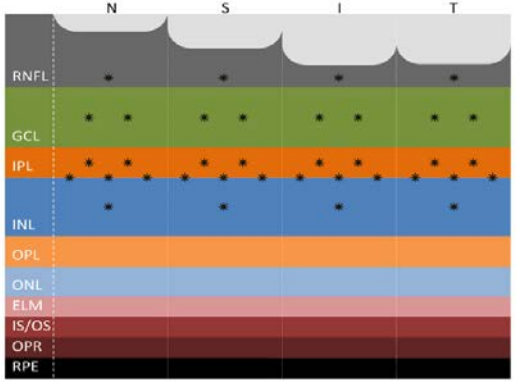
Fundus Fluorescent, Retinal Layer & Vascular Plexus Image Registration

Amydis will use AI-based classification based on fundus images plus OCT & OCTA en face project images from different retinal layers (OCT) & different retinal vascular plexuses (OCTA)

Alzheimer's

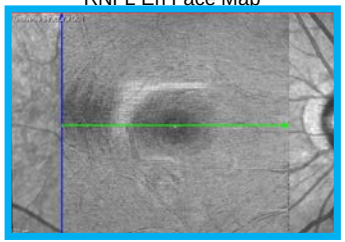


Parkinson's

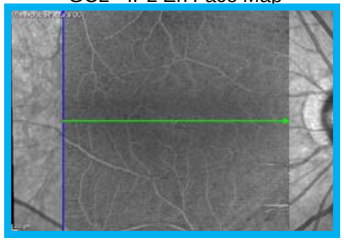


En Face structural OCT maps can be correlated to distinctive patterns in the retina

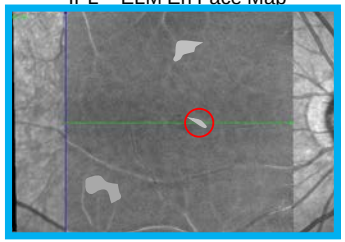
RNFL En Face Map



GCL - IPL En Face Map



IPL – ELM En Face Map



ELM – BM En Face Map