



JAGIELLONIAN UNIVERSITY
IN KRAKÓW



Micro-CT analysis of tumor angiogenesis in chicken embryo

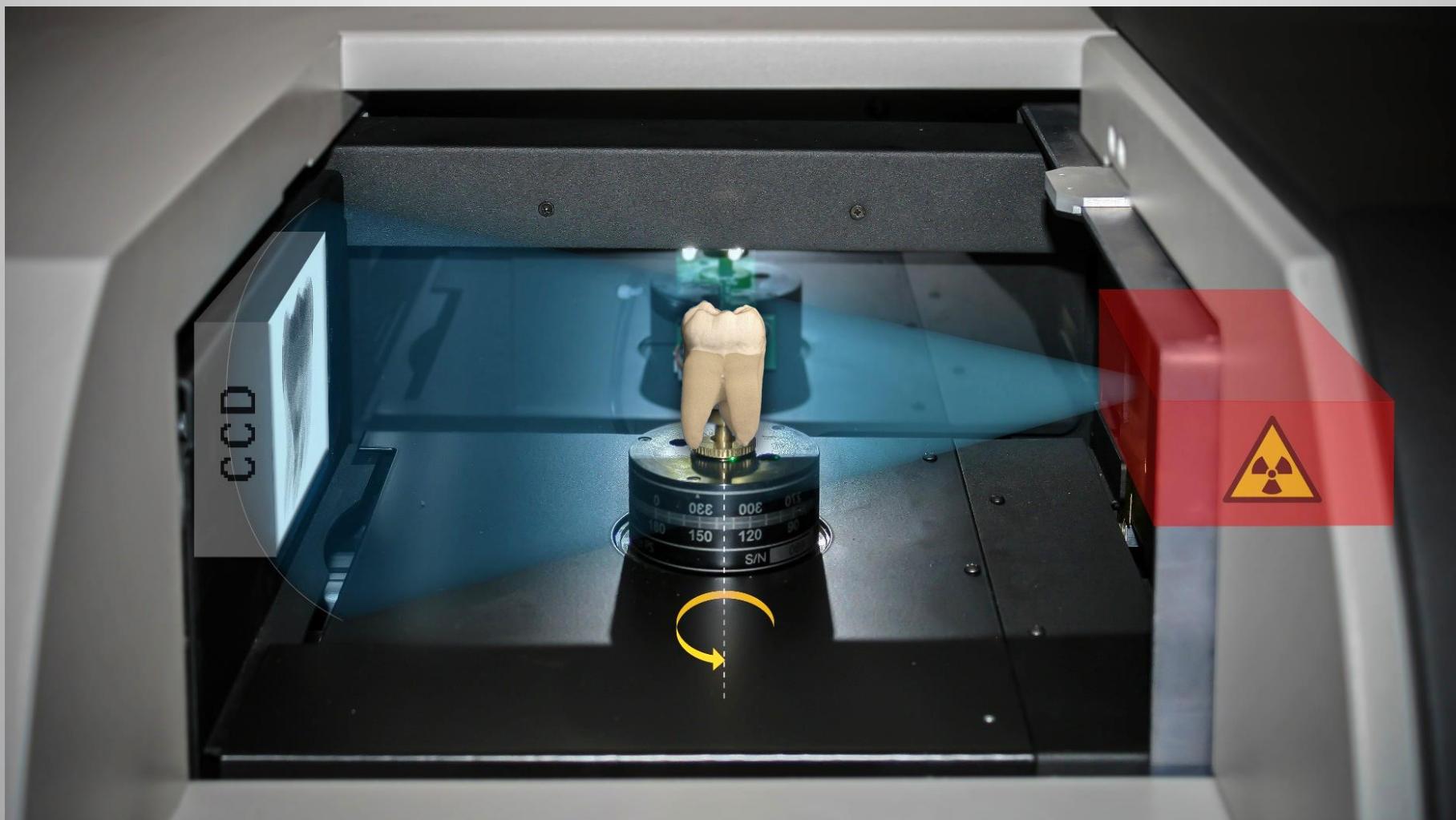


Bartosz Leszczyński, Andrzej Wróbel, Roman Pędrys and Ewa Stępień

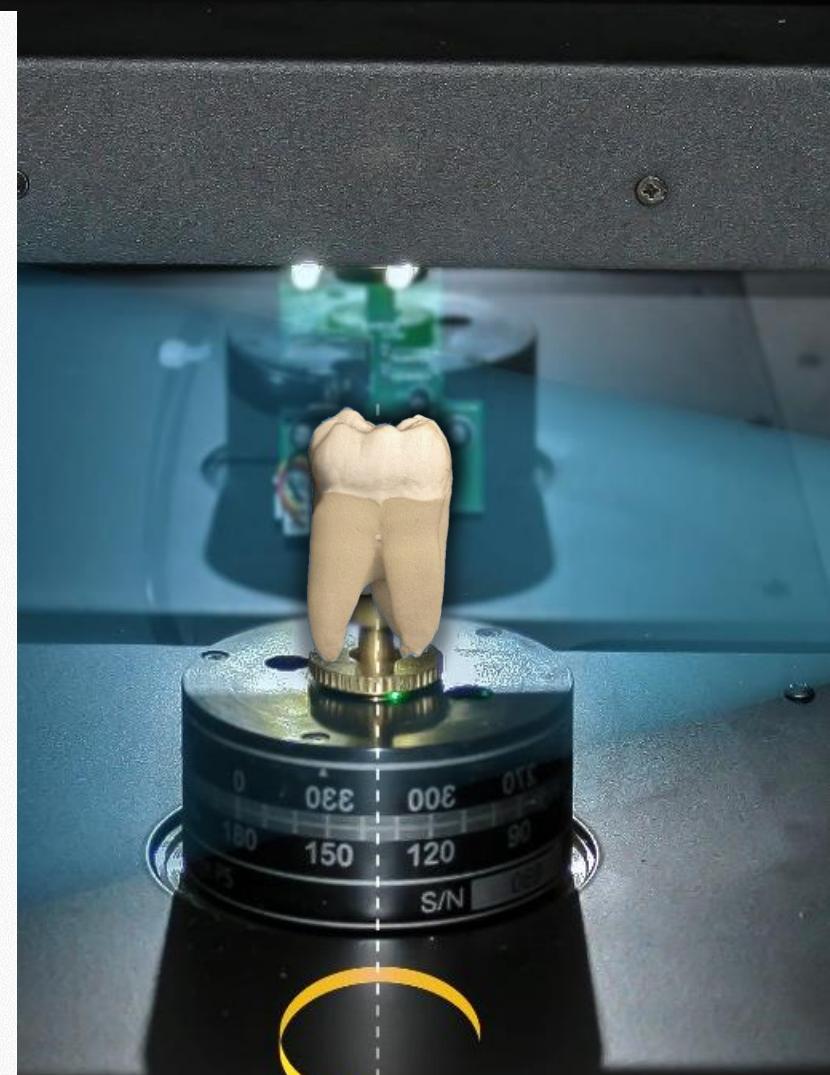
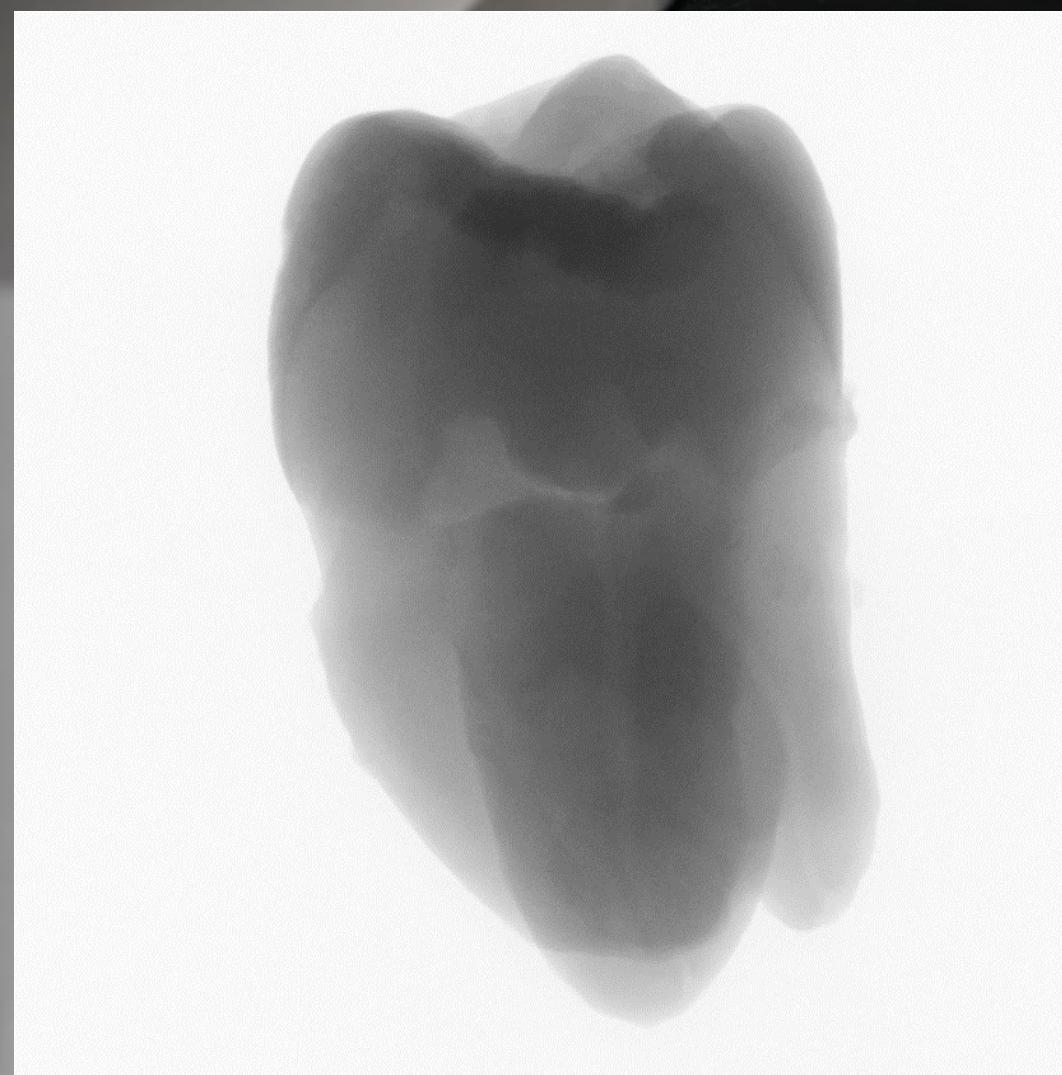
Medical Physics Department, Institute of Physics, Jagiellonian University

Microcomputed tomography

How it works?

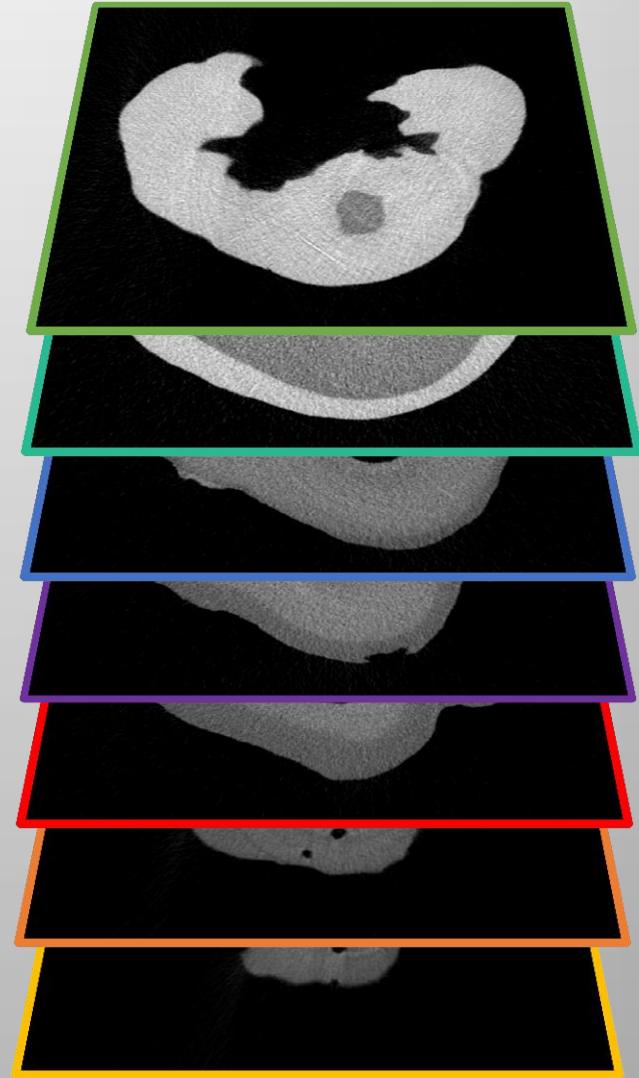
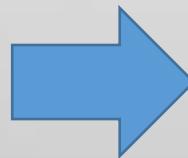
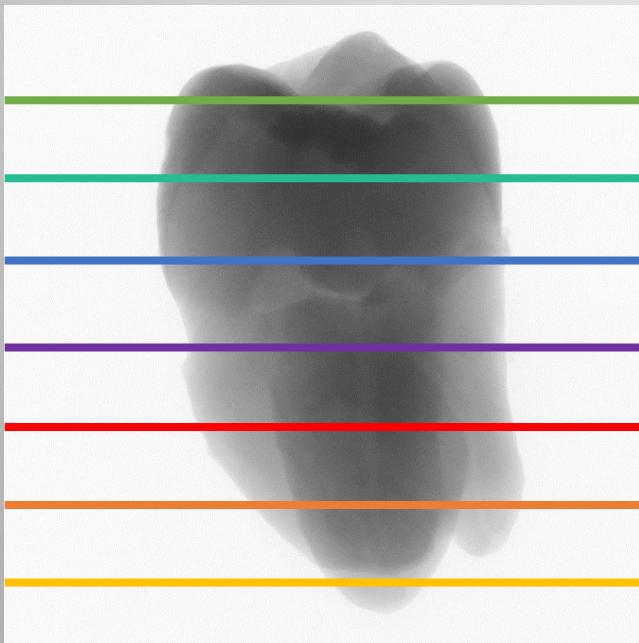


How it works?



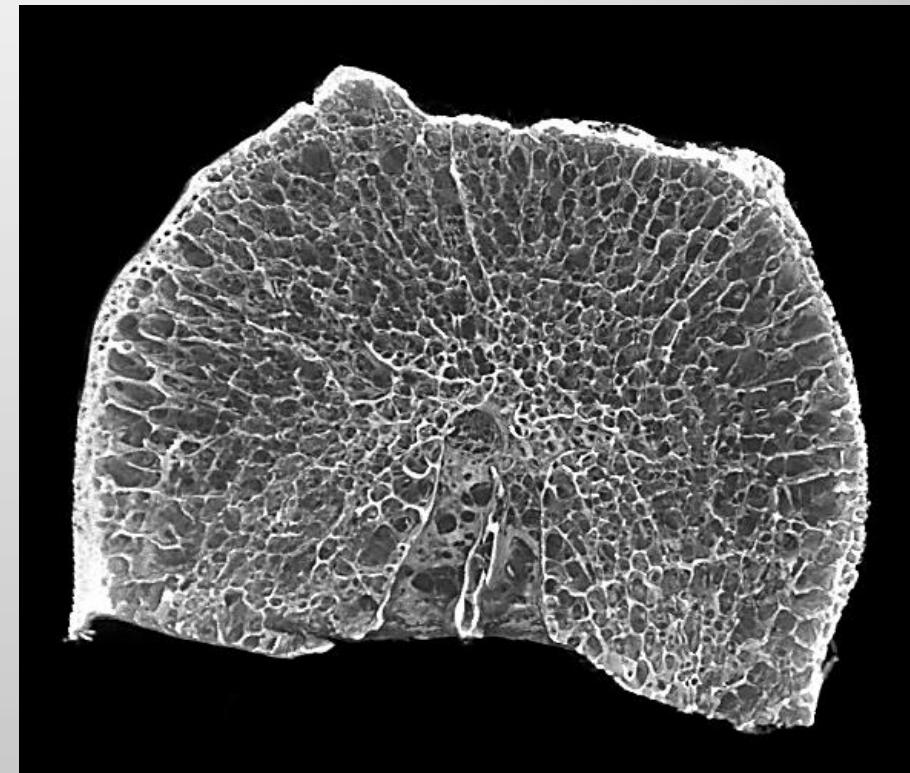
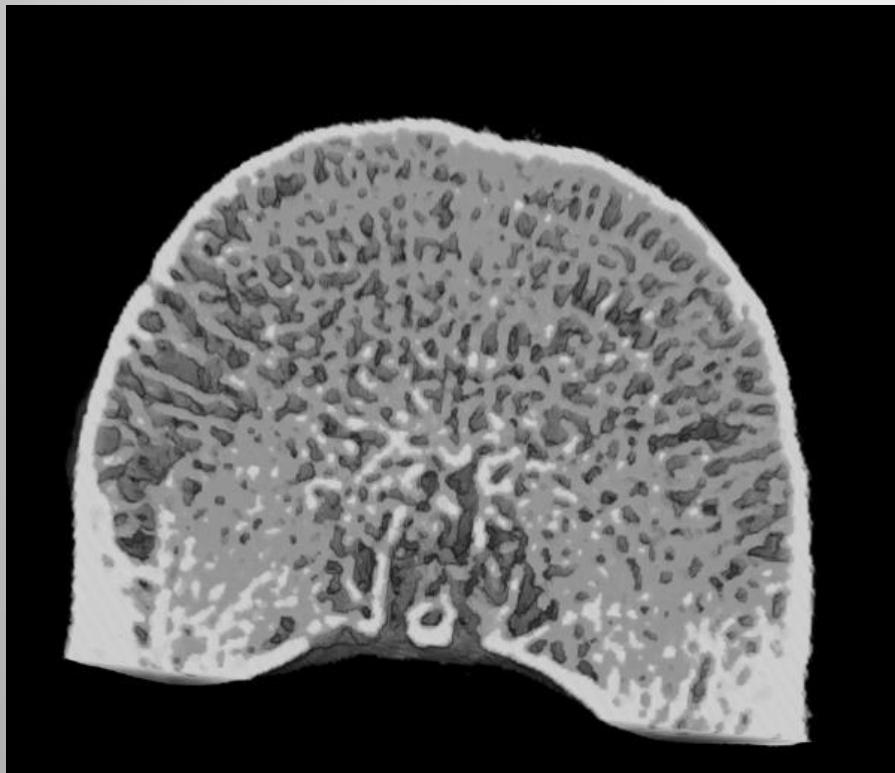
How it works?

Image reconstruction



We use modified Feldkamp algorithm.

Spatial resolution



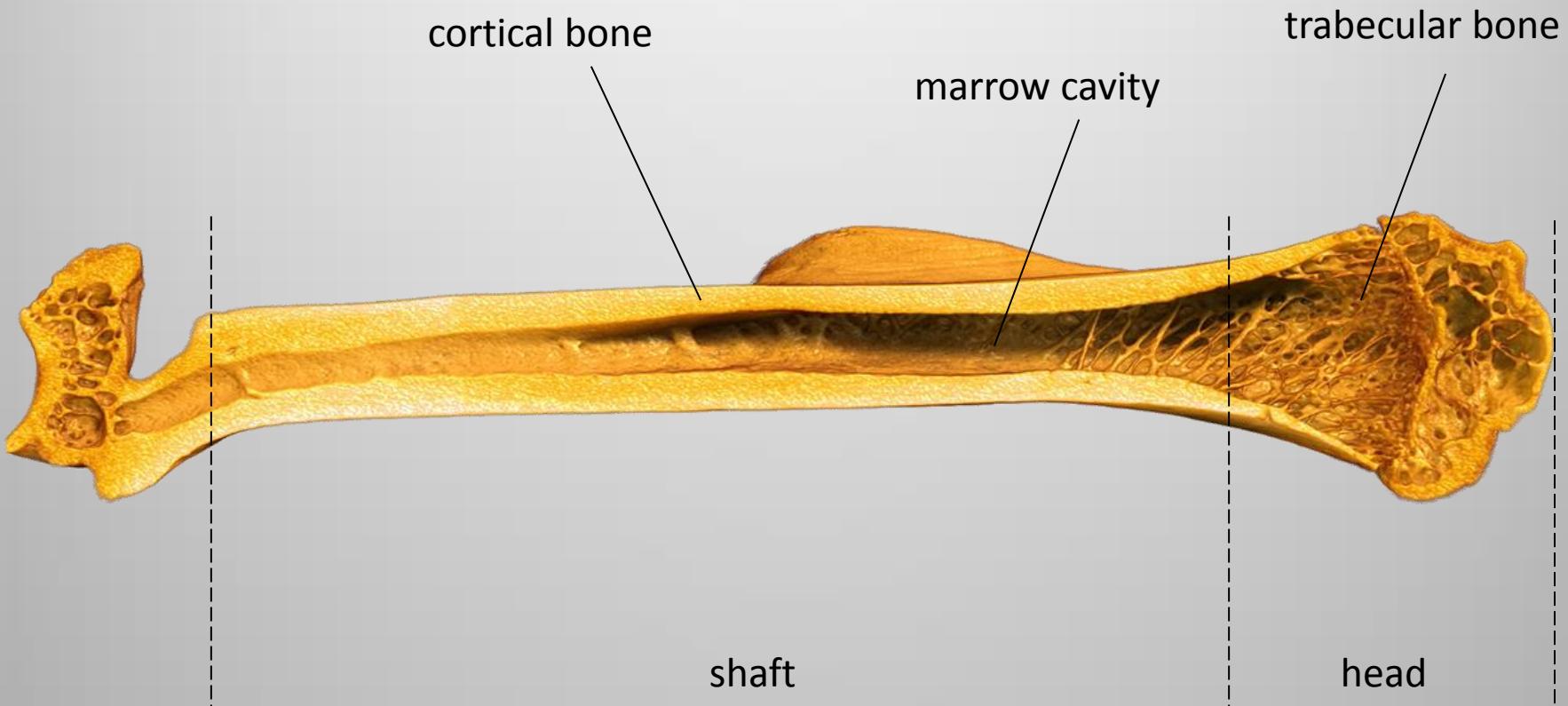
Clinical CT
0.5 mm



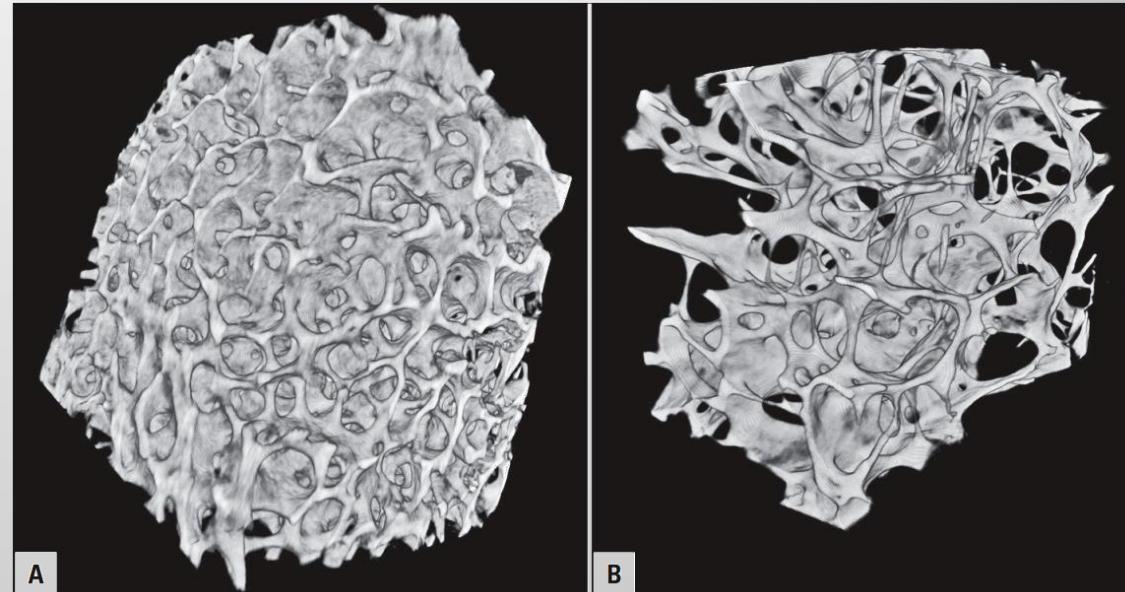
Micro-CT
1 μm

What we have done

Bone structure

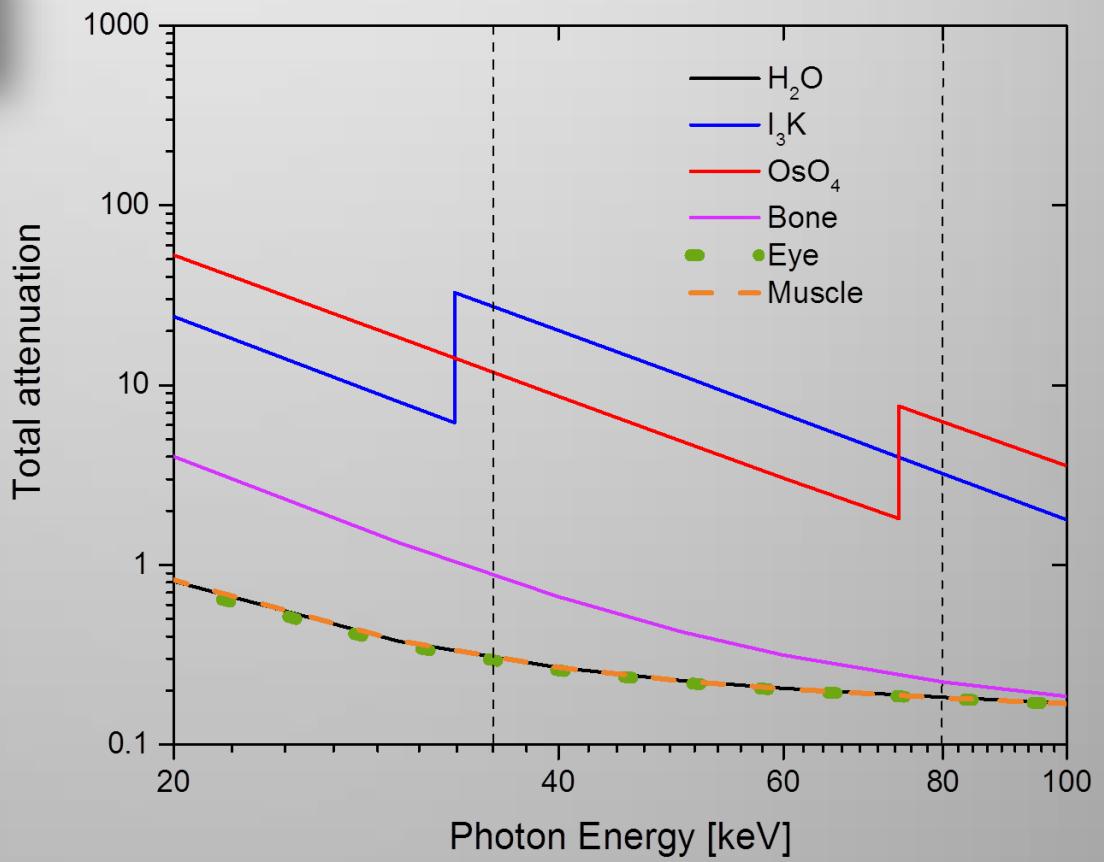
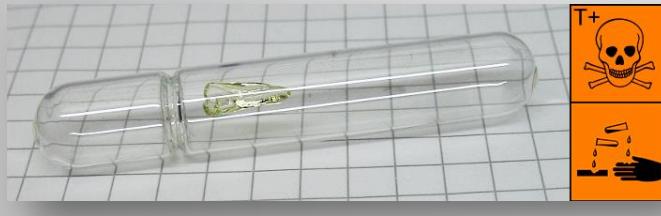


Bone structure



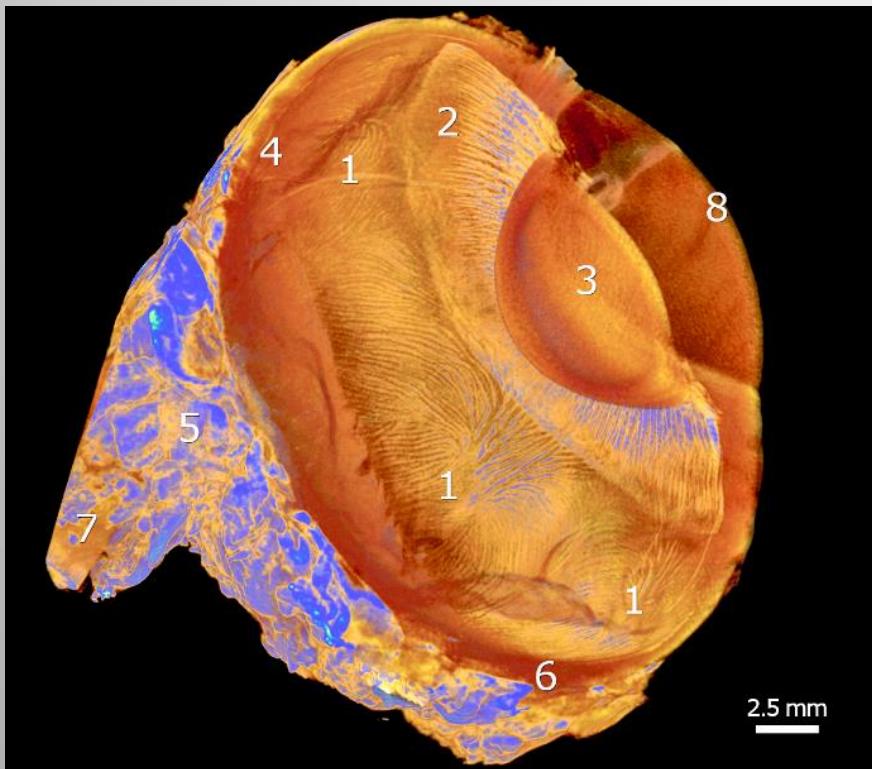
Age	25 years	64 years
BV/TV*	32%	10%
Tb.Sp*	450 μm	1051 μm
Tb.Th	169 μm	167 μm
FD	2.60	2.51

Soft tissues – staining methods



Soft tissues – eye globe

OsO_4



Vortex veins (1), ciliary body (2), lens (3), retina (4), orbital fat tissue (5), sclera (6), optic nerve (7), cornea (8).

Lugol solution



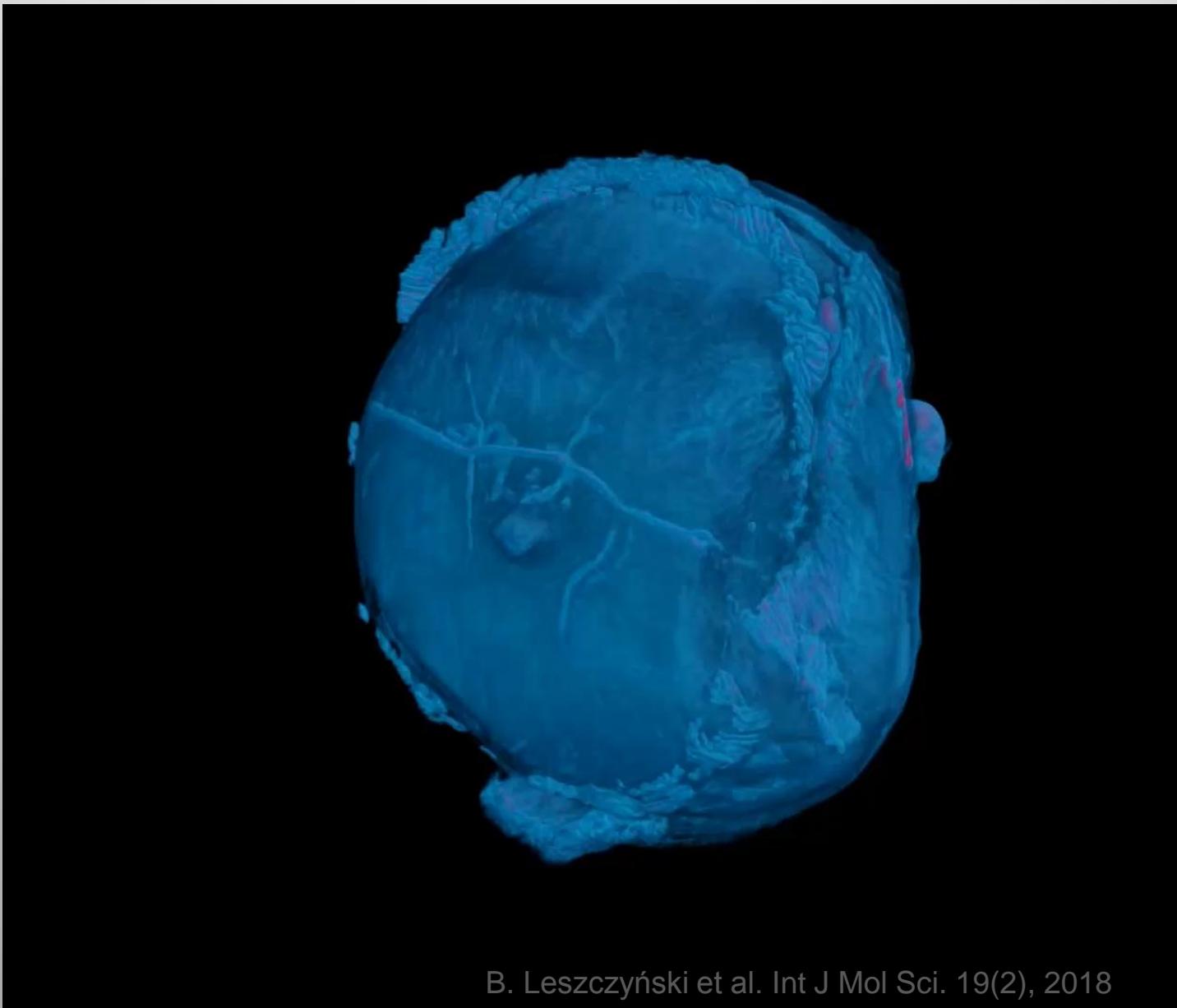
Cornea (1), anterior chamber (2), lens (3), ciliary body (4), sclera (5), retina (6), optic nerve disc (7), vessels (8)

Soft tissues – eye globe

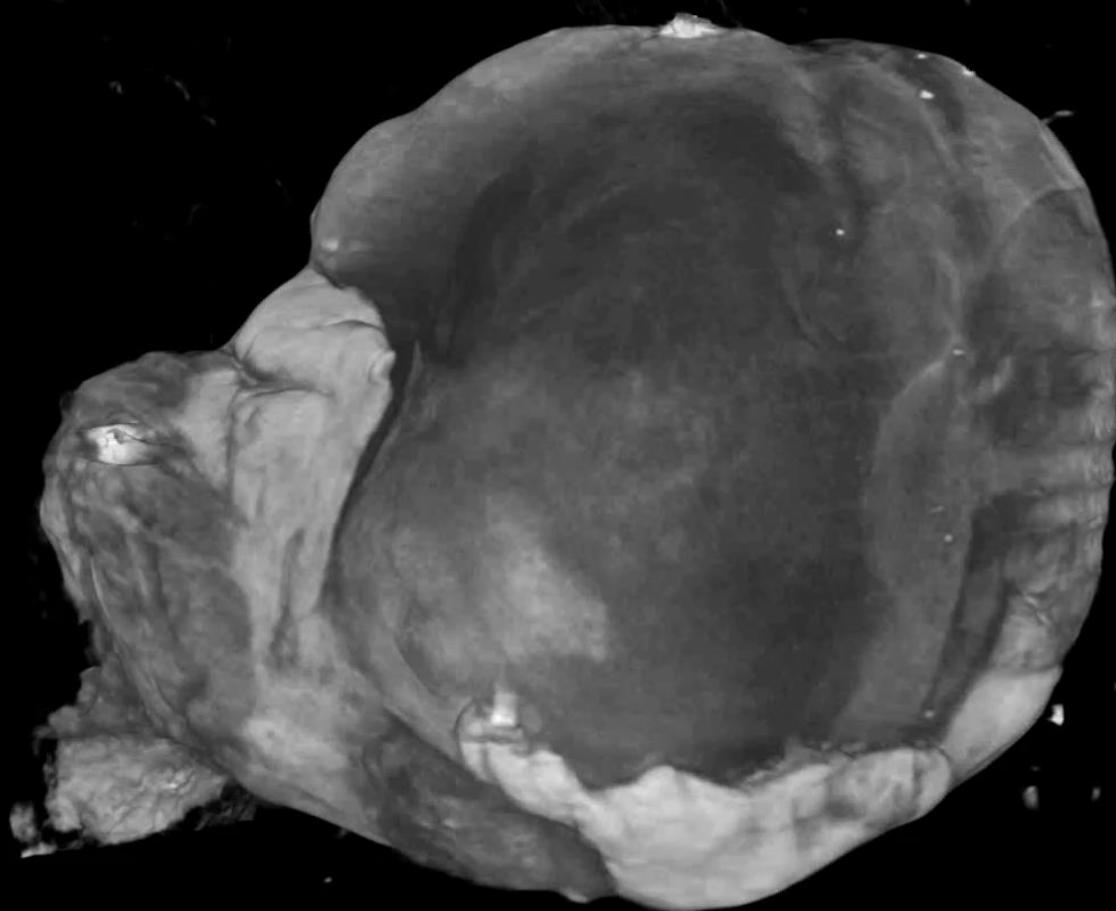
Bomirski Hamster Melanoma



Bomirski Hamster Melanoma



Bomirski Hamster Melanoma



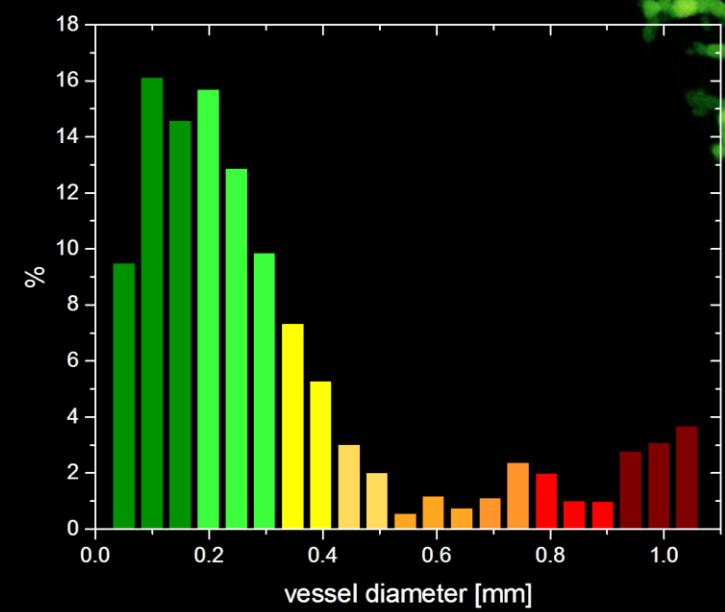
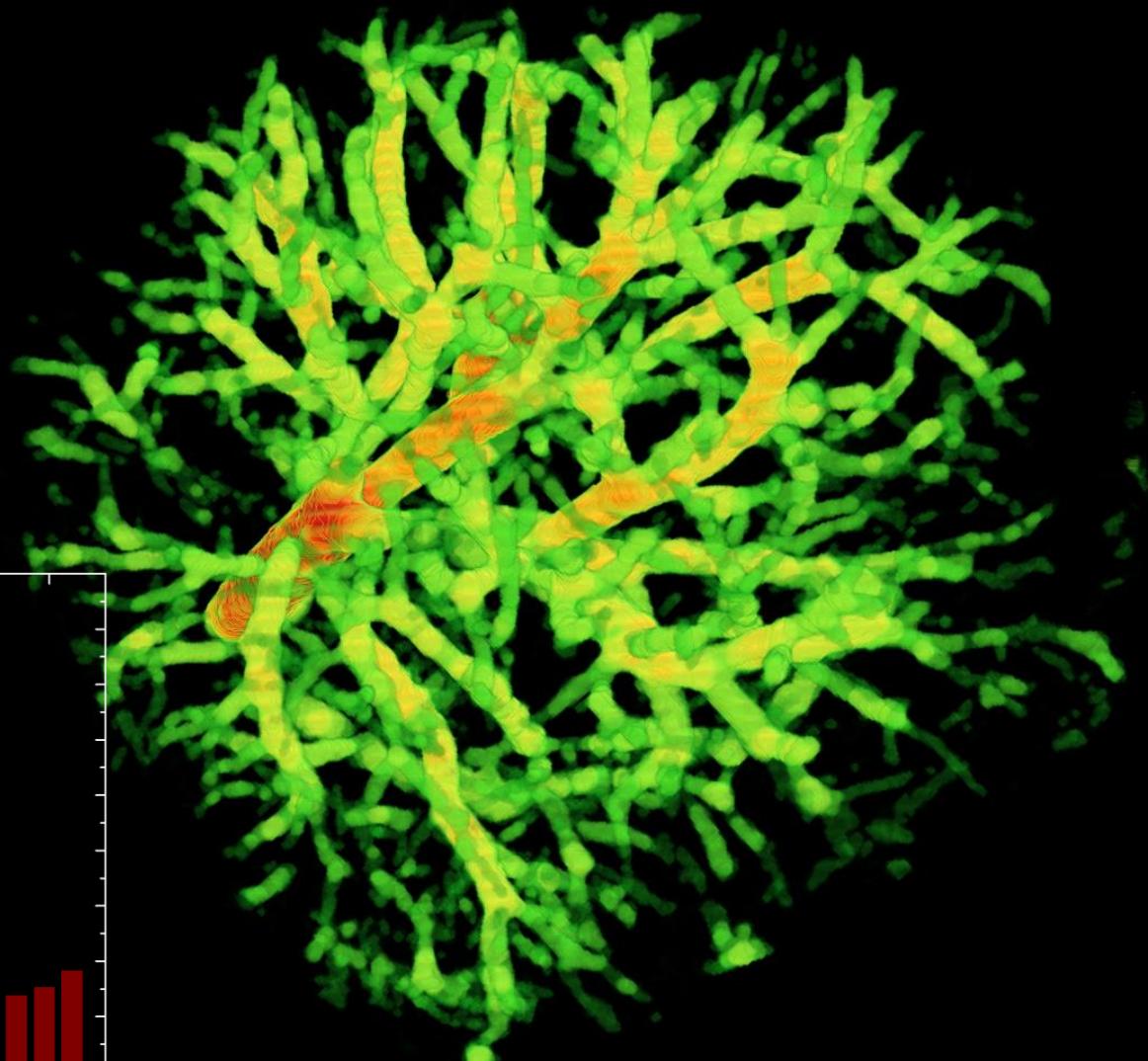
Embryos in micro-CT



Vascular network of embryo liver

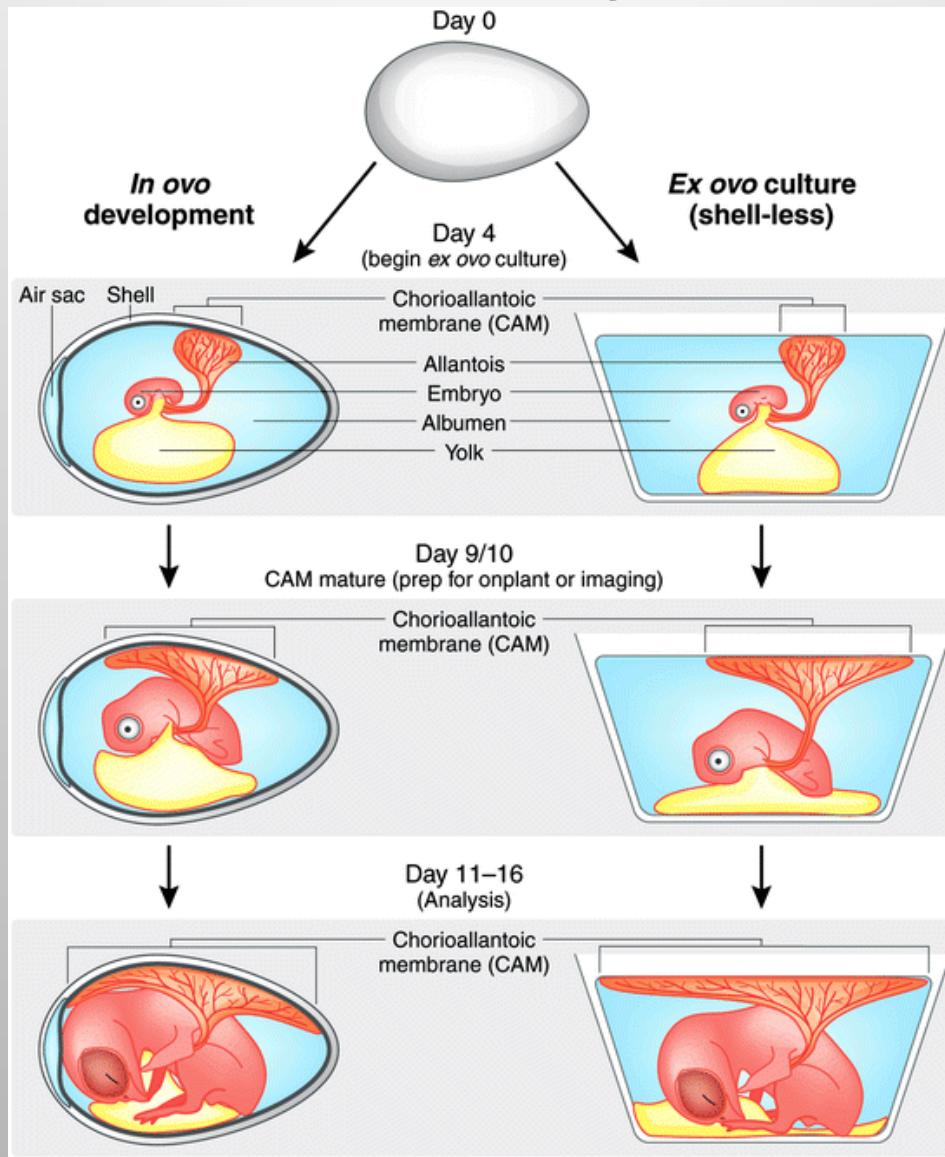


Vascular network of embryo liver

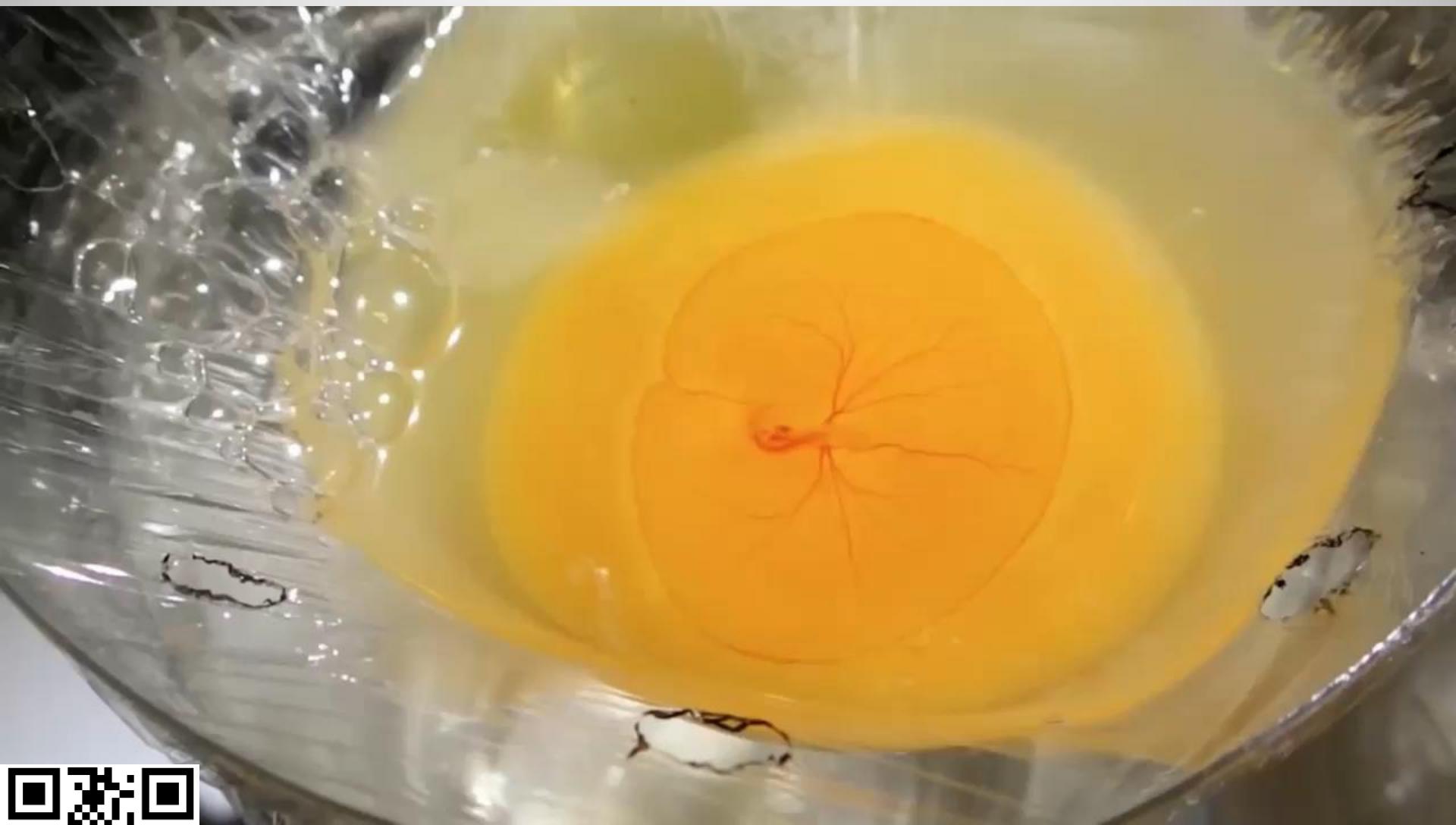


Future

Ex-ovo chick embryos culturing



Ex-ovo chick embryos culturing

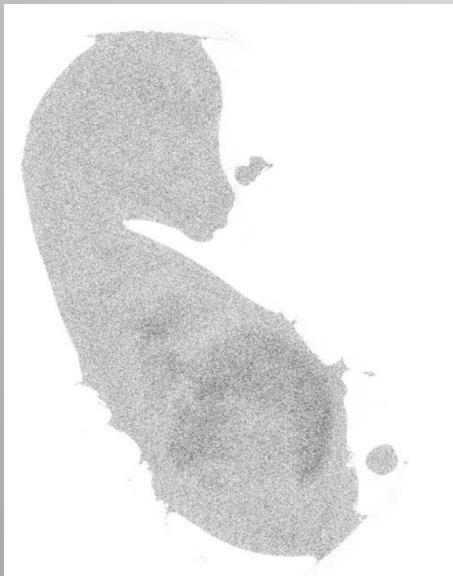


Video on YouTube.com by Yusaku Watanabe (<https://youtu.be/uEOuKvUbcfw>)

Our goals

1. Optimization of the staining process

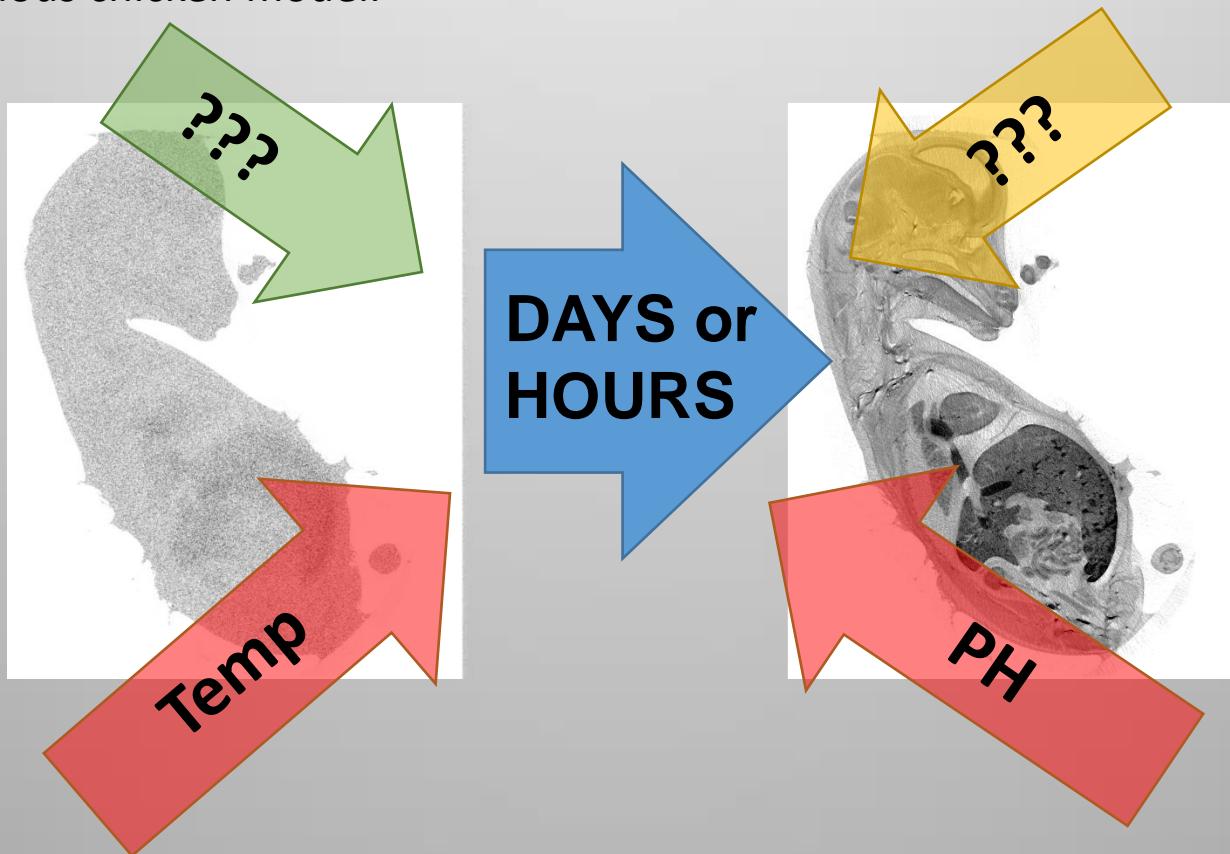
In review: Optimization of soft tissue contrasting methods in microtomographic studies of the angiogenesis process on the ex-ovo exogenous chicken model.



Our goals

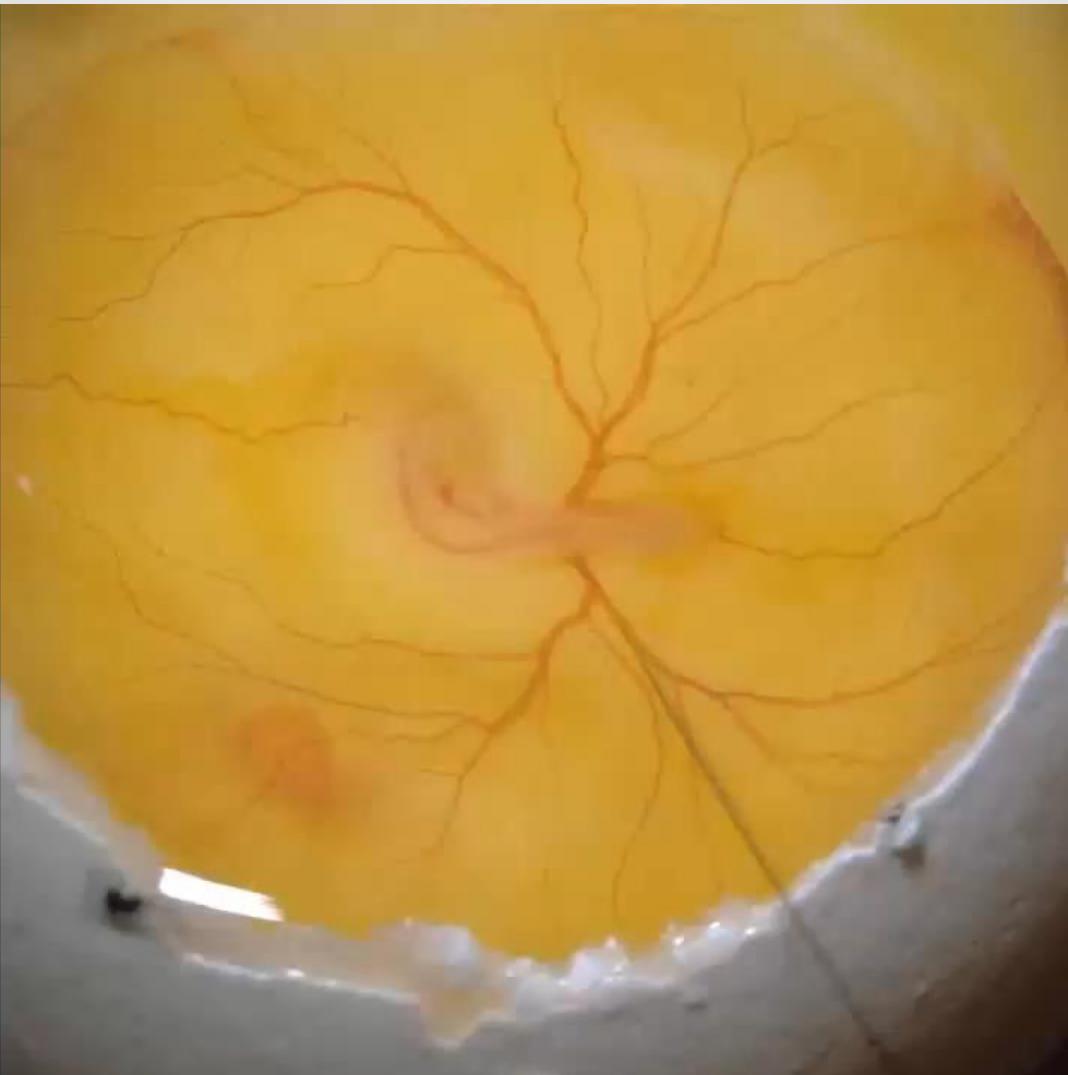
1. Optimization of the staining process

In review: Optimization of soft tissue contrasting methods in microtomographic studies of the angiogenesis process on the ex-ovo exogenous chicken model.

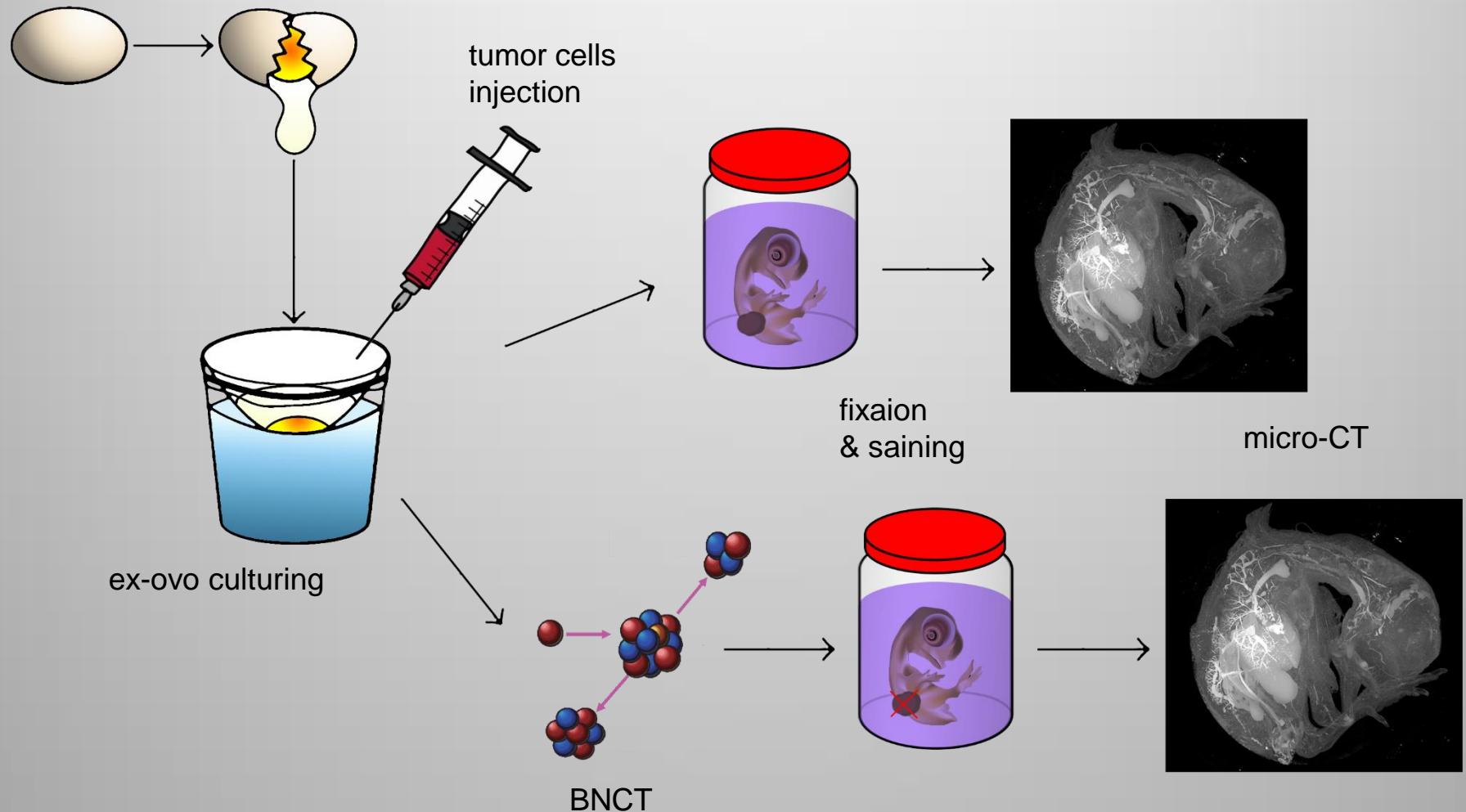


Our goals

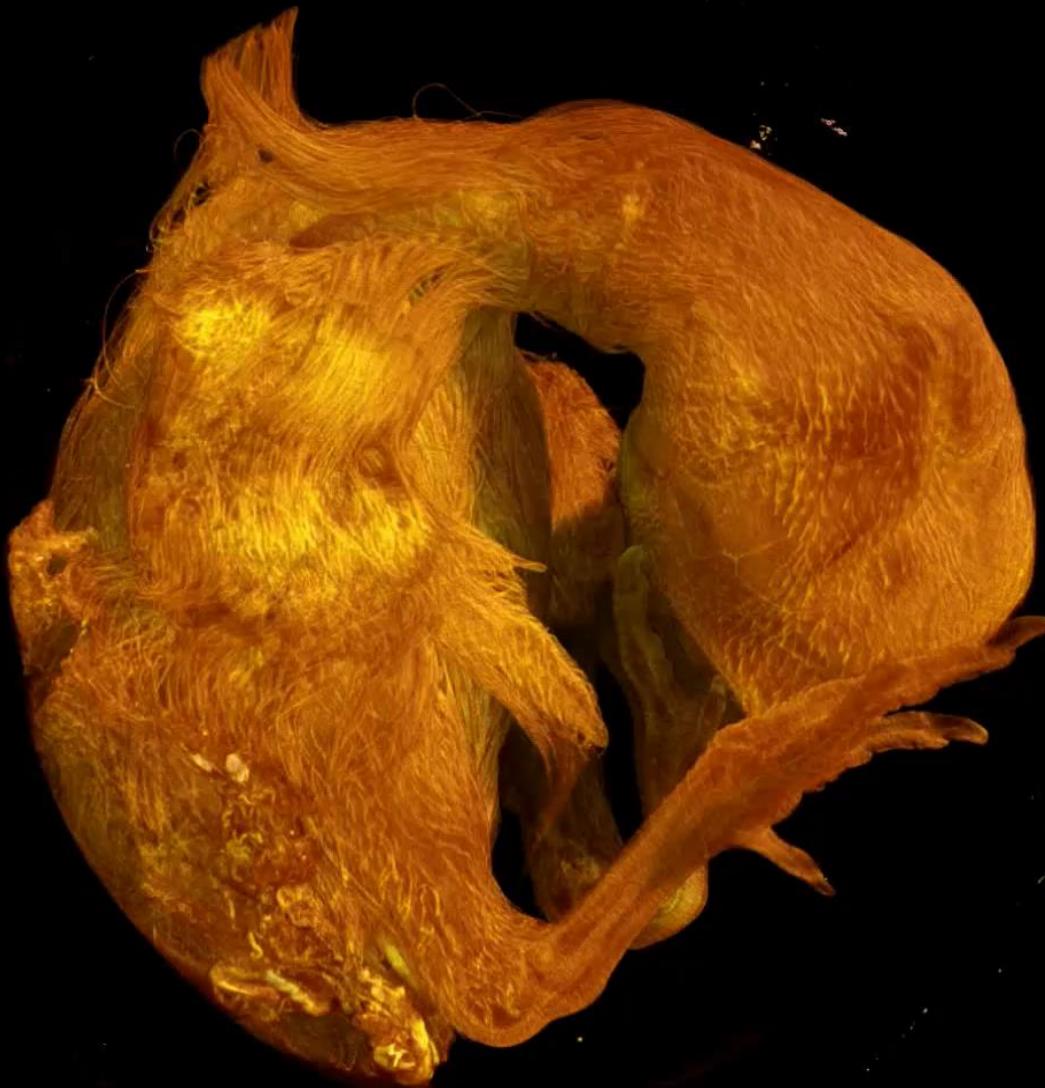
2. Add injection



Plan of future experiment



Result



GRACIAS **THANK**
ARIGATO **YOU**
SHUKURIA **BOLZİN** **MERCI**
JUSPAXAR **DANKSCHEEN**

NUHUN SPASSIBO SNACHALHYA CHALTU TASHAKKUR ATU YAQHANYELAY YOSPAGARATAM
TAVAPUCH MEDAWAGSE BAIRAA KOMAPSUMNIDA SANCO MERASTAWHY GAEJTHO LAH MAAKE ATTO DHANYABAD WABEEJA MAITEKA HUI
GOZAIMASHITA EFCHARISTO AGUYJE FAKRAUE UNALCHEESH
MAKESI DENKRAUJA EKOJU SIKOMO MARETAI
MEHRBANI PALLDIES

TINGKI BİYAN SHUKRIA