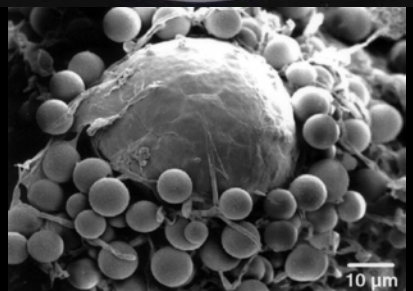
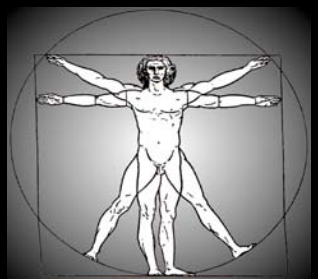




Dept. Molecular Microbiology & Genetics

Gerhard Braus

Fungal Genetics, Development and Cell Biology:

From single cells to multicellular filaments

From filaments to complex structures + sec. metabolites

Fungi as human and plant pathogens

Fungi as models for neurodegenerative diseases

Protein degradation and translational control and Proteomics/Mass Spectroscopy:
Readout: yeast (single cell) → filament Oliver Valerius

Clearing of protein aggregates:
Readout: Parkinson aggregates in fungi Blaga Popova

Protein degradation: CSN: Elena Beckmann; and LID (Proteasome): Mirit Gulko

Protein degradation and tissue formation:
Readout: Fungal development:
Signal transduction: from the fungal eye to the coordination of fungal development and secondary metabolism: Özgür Bayram

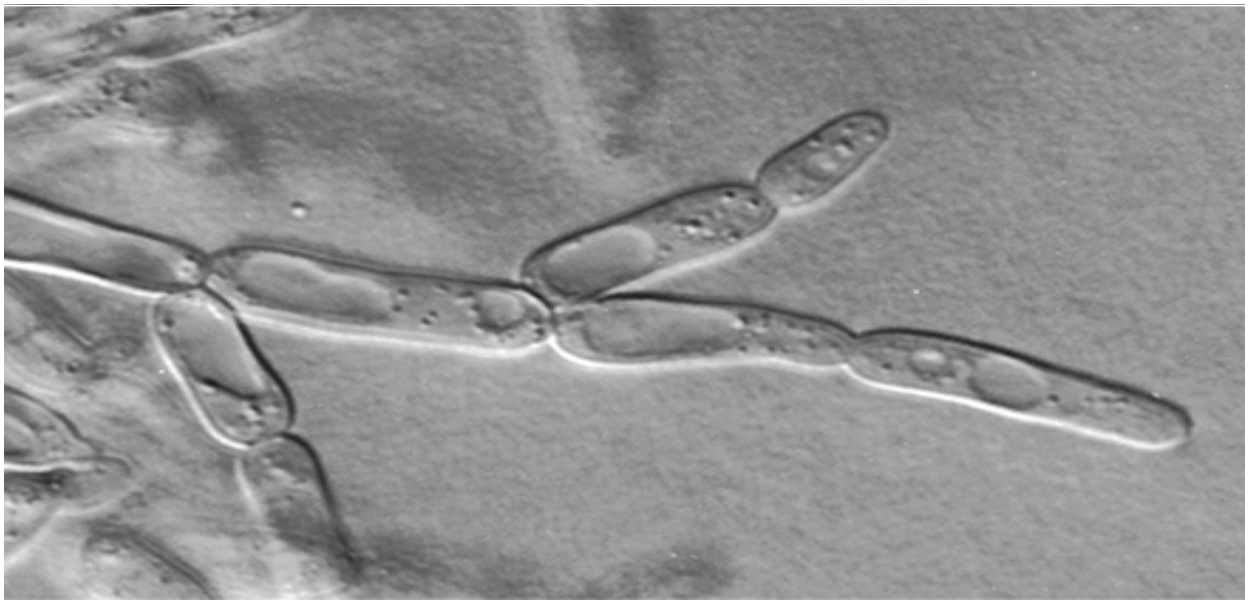
Human fungal pathogens: How does a vegetarian survive blood? Henriette Irmer
Fungal resistance mechanism: Christoph Sasse

Plant pathogens: How does a fungus grow in the plant xylem (water support system)? Susanna Braus-Stromeyer, Harald Kusch, Tuan Tran

gbraus@gwdg.de 0551-39-3770 / 3771

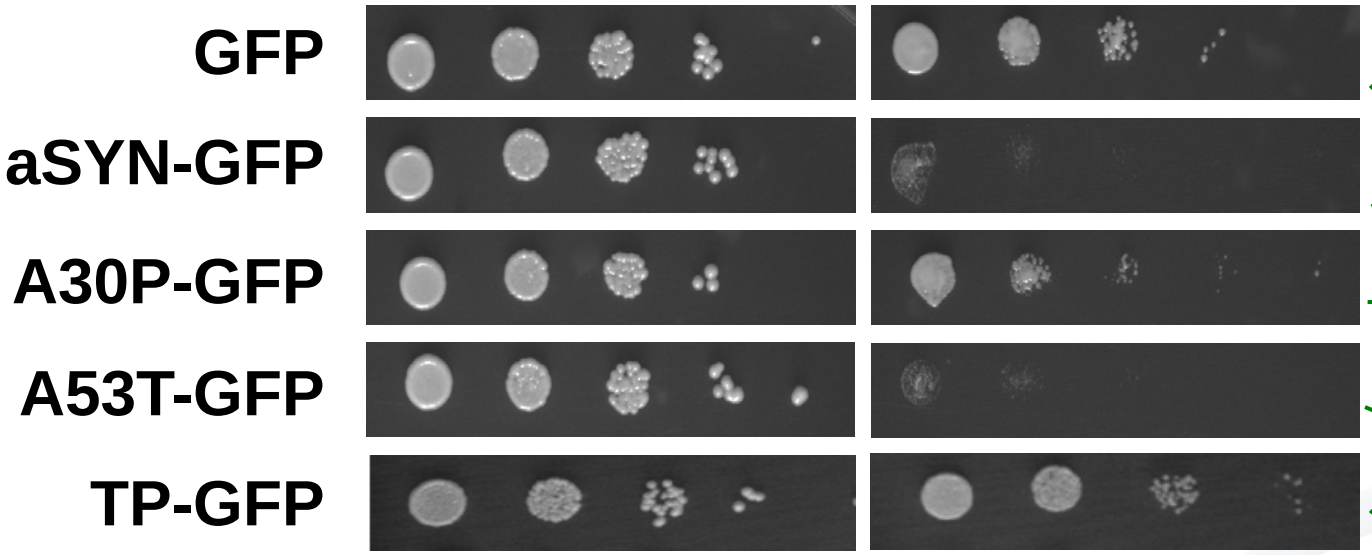
Yeast vs. Filamentous growth of *S. cerevisiae*: Pseudohyphae

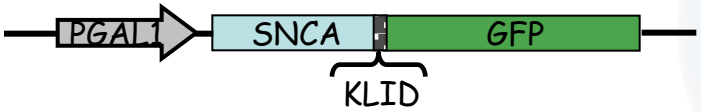
Dr. Oliver Valerius

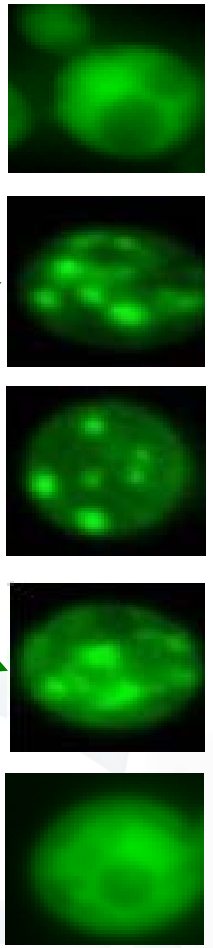


Yeast as model for Morbus Parkinson

Expressing α-synuclein or mutant versions results in reduced growth





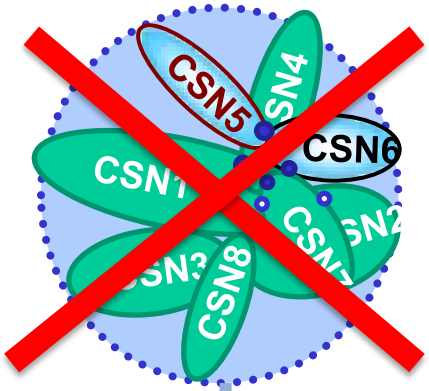


Dr. Blaga Popova

Lewy body pathology in yeast

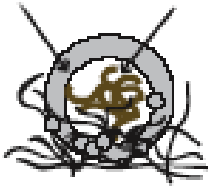
COP9 signalosome CSN and LID of the proteasome

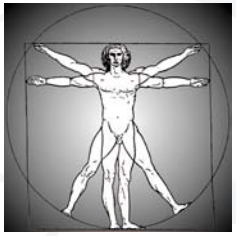
Dr. Elena Beckmann



primordium

μ-cleistothecium



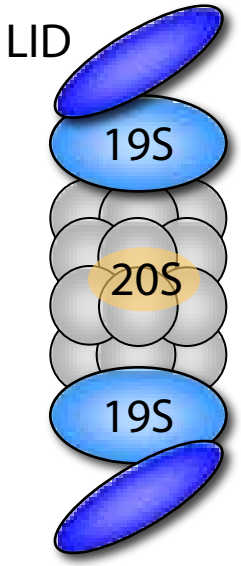


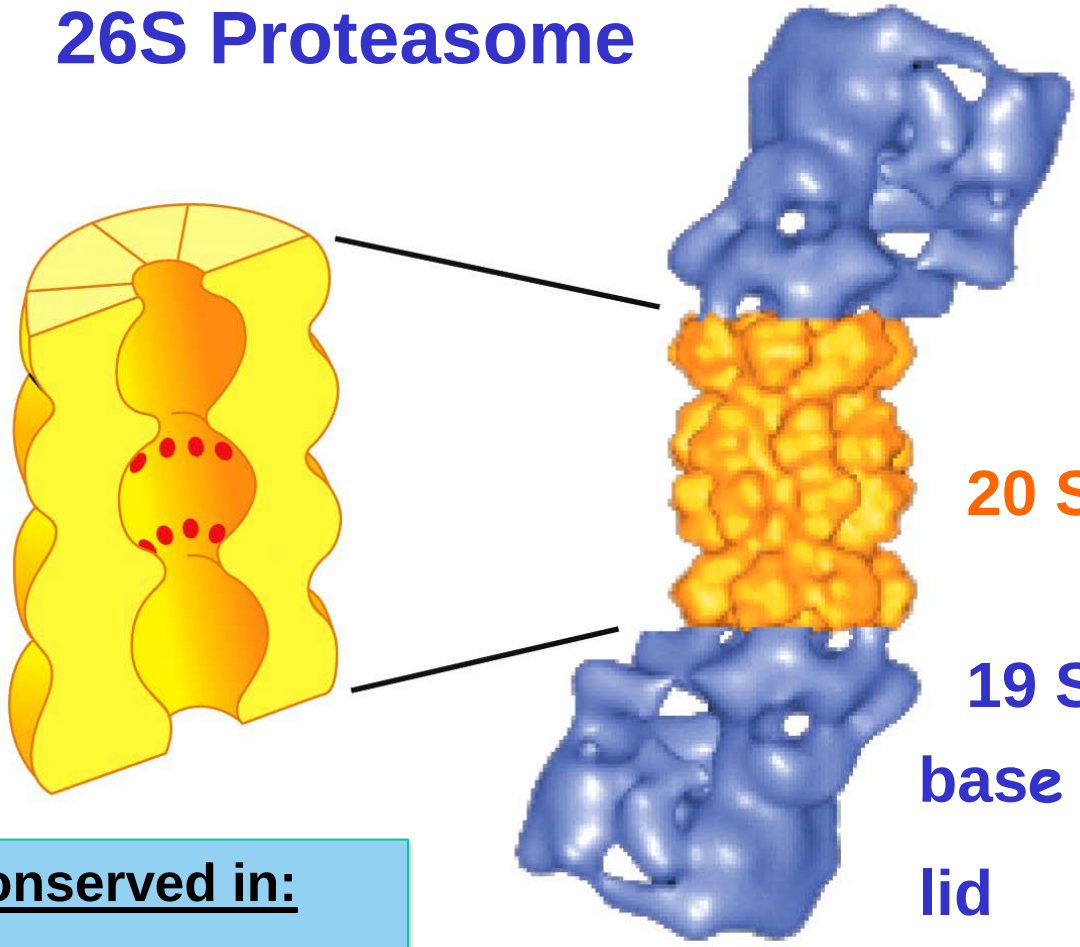
[plant]

defects in CSN:
embryonic death
in plants and mammals,
block in fruit body
formation in fungi

CSN overexpression: cancer

26S Proteasome





20 S core

19 S cap:

base

lid

PCI subunits are conserved in:

P: proteasome lid

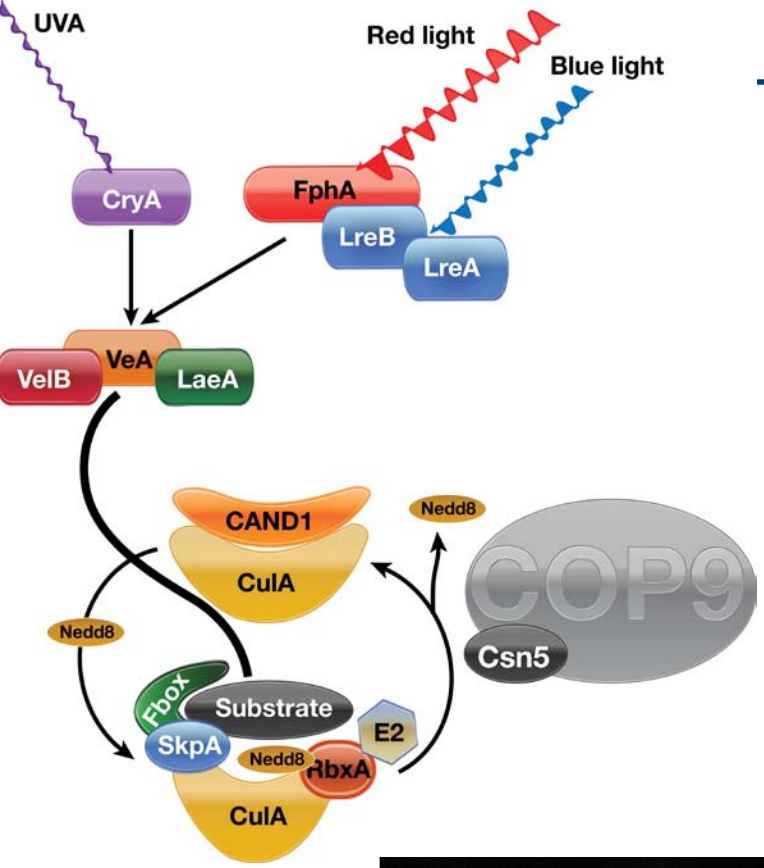
C: COP9 signalosome CSN

I: inititation factor of translation eIF3

ZOMES:

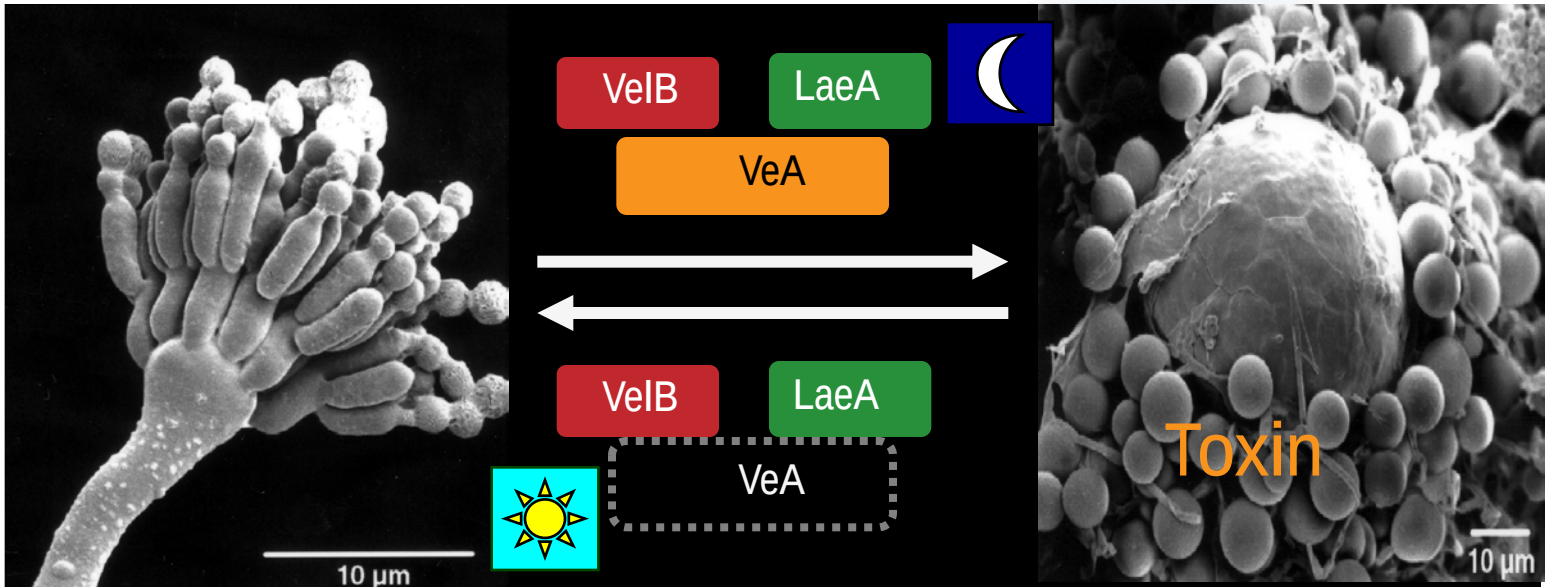
control protein life span

Dr. Mirit Gulko



Coordination of development and secondary metabolism, the fungal eye, the velvet domain family and LaeA

Dr. Özgür Bayram



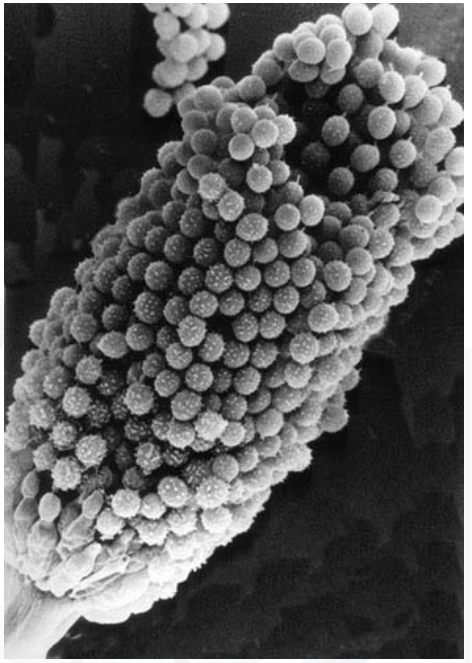
A. fumigatus as opportunistic pathogen

Dr. Henriette Irmer:
***A. fumigatus* in blood**
Dr. Christoph Sasse:
***A. fumigatus* drug resistance**

world-wide, saprophyte, filamentous fungus,
causes **aspergillosis**
(HIV, transplantation)

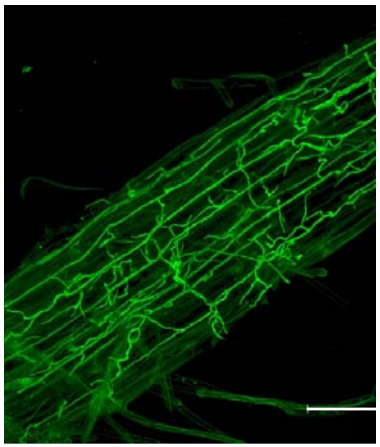
Simple colonization
local enrichment, non-invasive
ABPA (allergic bronchopulmonary aspergillosis)
local invasion
chronic progressive
acute fulminant

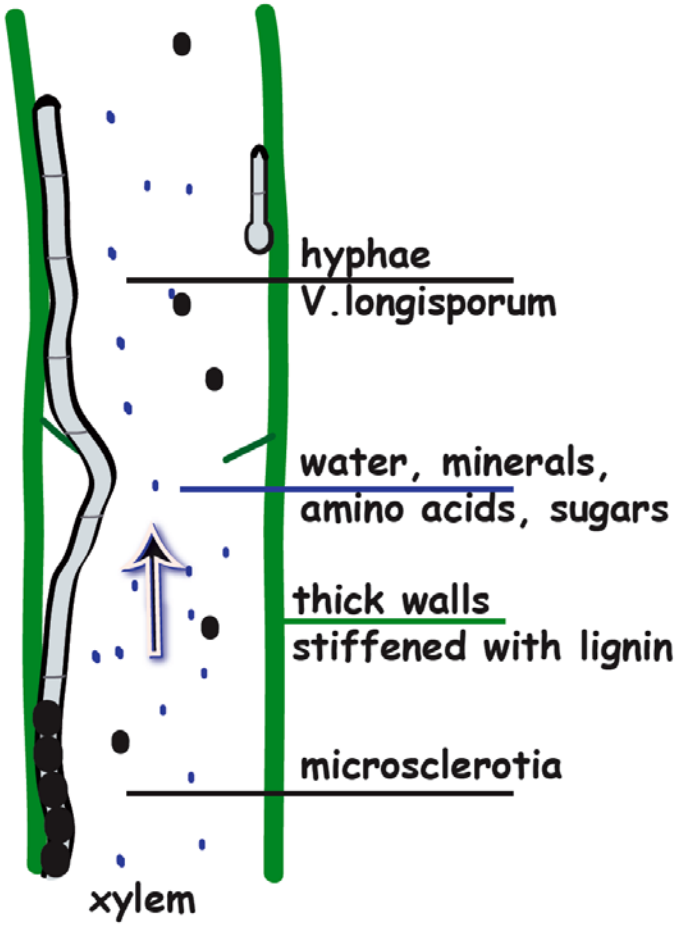
in blood:: 80% mortality!!!!!



•Small air-borne conidia (2-3 μm)

infected rape





non-infected rape

Dr. Susanna Braus-Stromeyer
Dr. Harald Kusch
Dr. Tuan Tran

Verticillium longisporum infects rape and grows within the plant