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Research Interests

Our group is primarily interested in several aspects concerning: 1) regulation of expression, structure-function relationships, specificity, cell biology and evolution of amino acid transporter proteins and 2) the lateral organization of the fungal plasma membrane. Our model organism of choice is the non-pathogenic ascomycetes *Aspergillus nidulans*, a classic model genetic system since the 1950's. Two

Aspergillus nidulans

amino acid transporters have been cloned and studied in detail in respect to their transcriptional, post-translational/functional and cellular control of expression. In addition, we have introduced

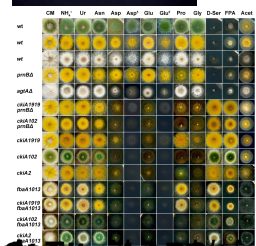
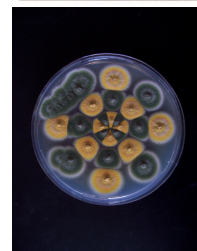
Aspergillus nidulans

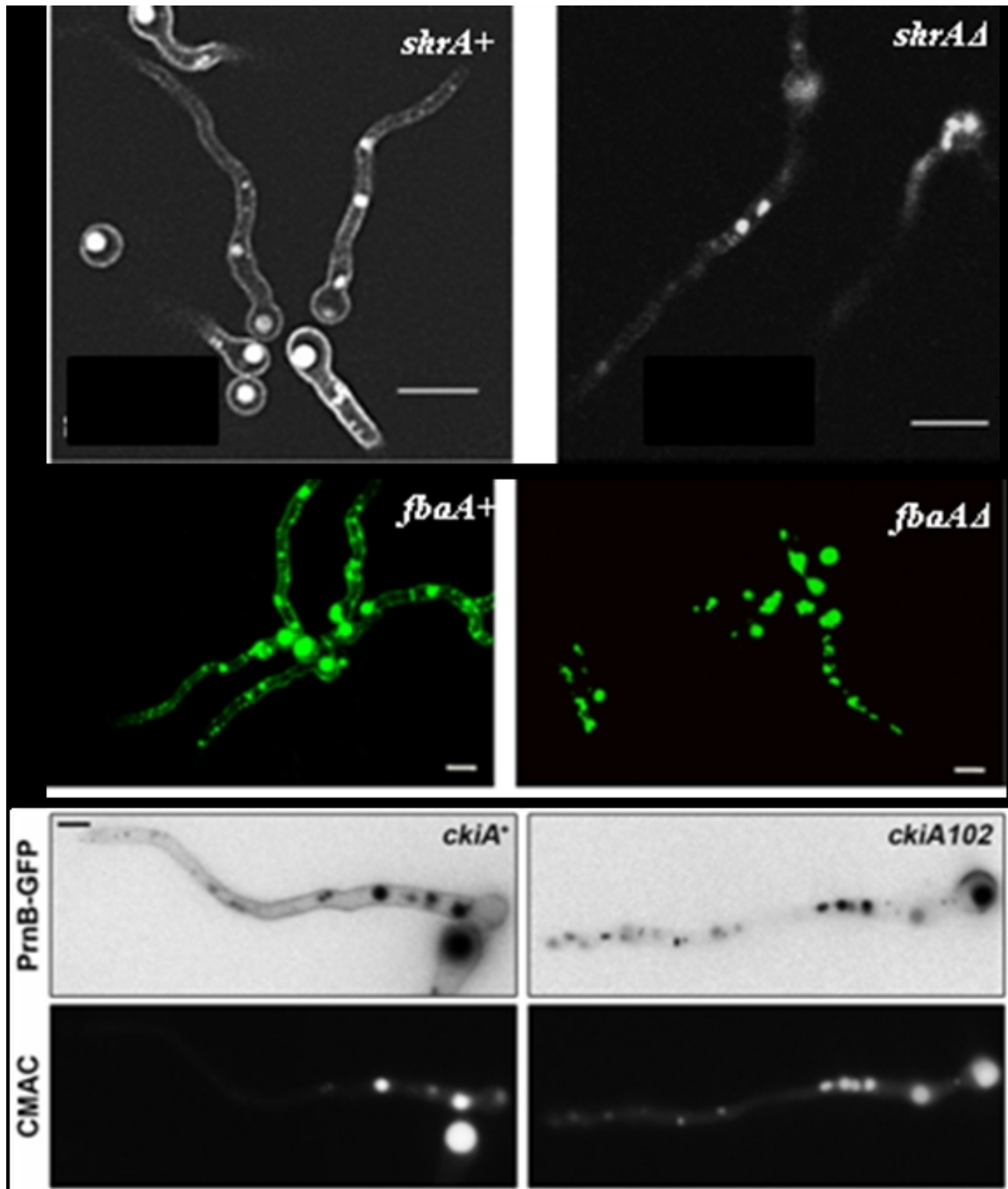
as a novel model system for the expression and/or functional characterization of heterologous transporter genes (Argyrou et al. 2001). In parallel, the last 7 years we have been studying the lateral compartmentation of

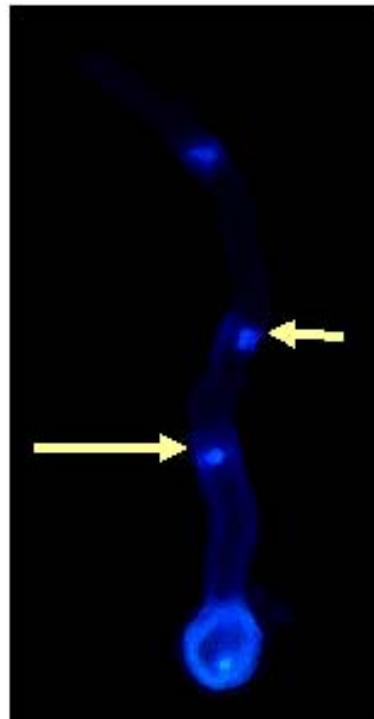
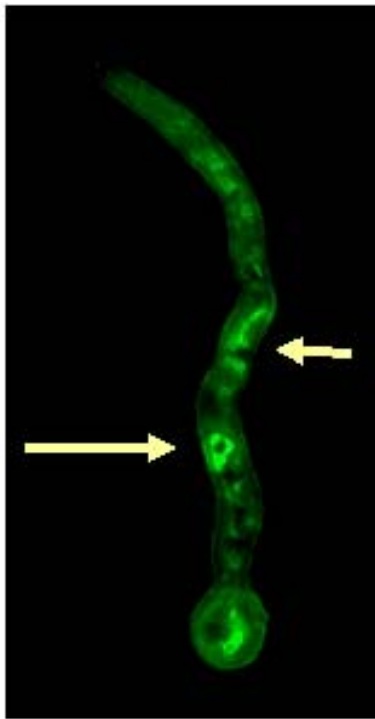
Aspergillus nidulans

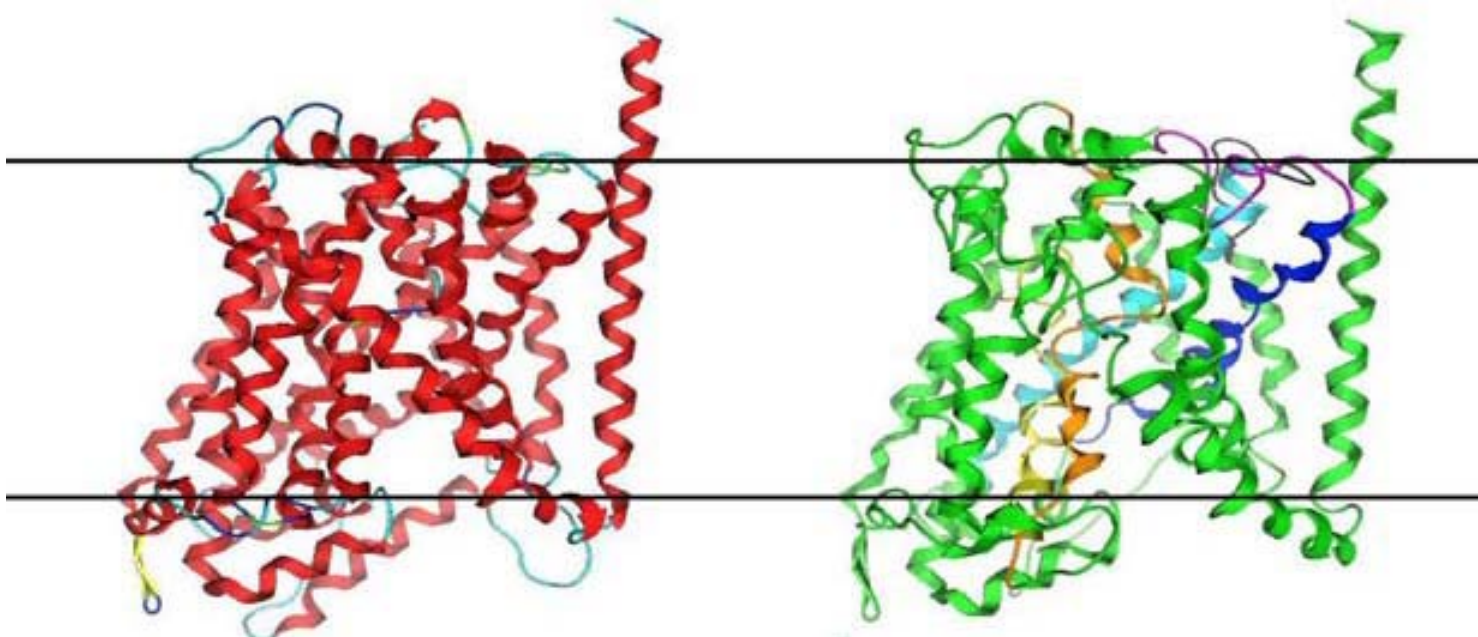
plasma membrane and how this organization is implicated in different cellular processes. In particular we are focusing on "eisosomes" static plasma membrane compartments that constitute nanoscale furrow-like invaginations of the plasma membrane, where proteins and lipids segregate and their implication in fundamental cellular processes (sphingolipid biosynthesis, endocytosis of membrane proteins, function of efflux pumps and fungal pathogenicity).











Protein structure of the Tif protein (PDB ID: 1TIF) and the Tif protein (PDB ID: 1TIF) in the presence of the Tif protein (PDB ID: 1TIF).

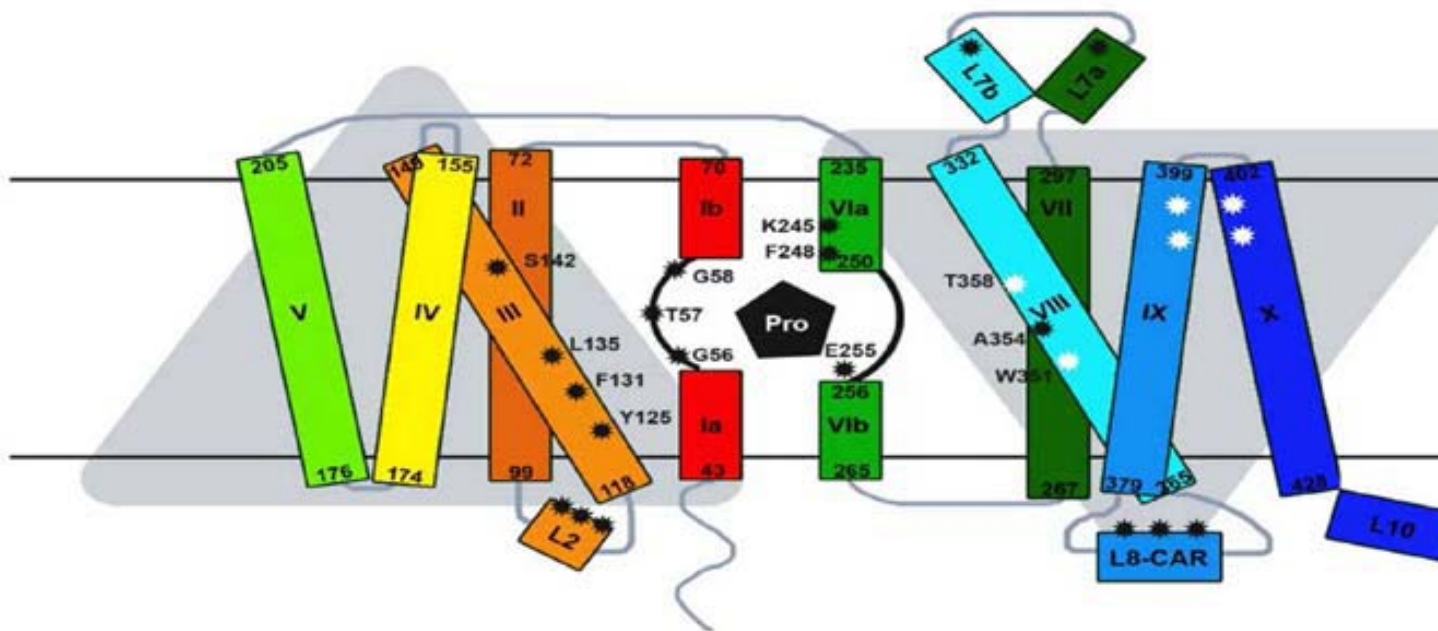


Diagram showing the structure of the Tif protein (PDB ID: 1TIF) and the Tif protein (PDB ID: 1TIF) in the presence of the Tif protein (PDB ID: 1TIF).

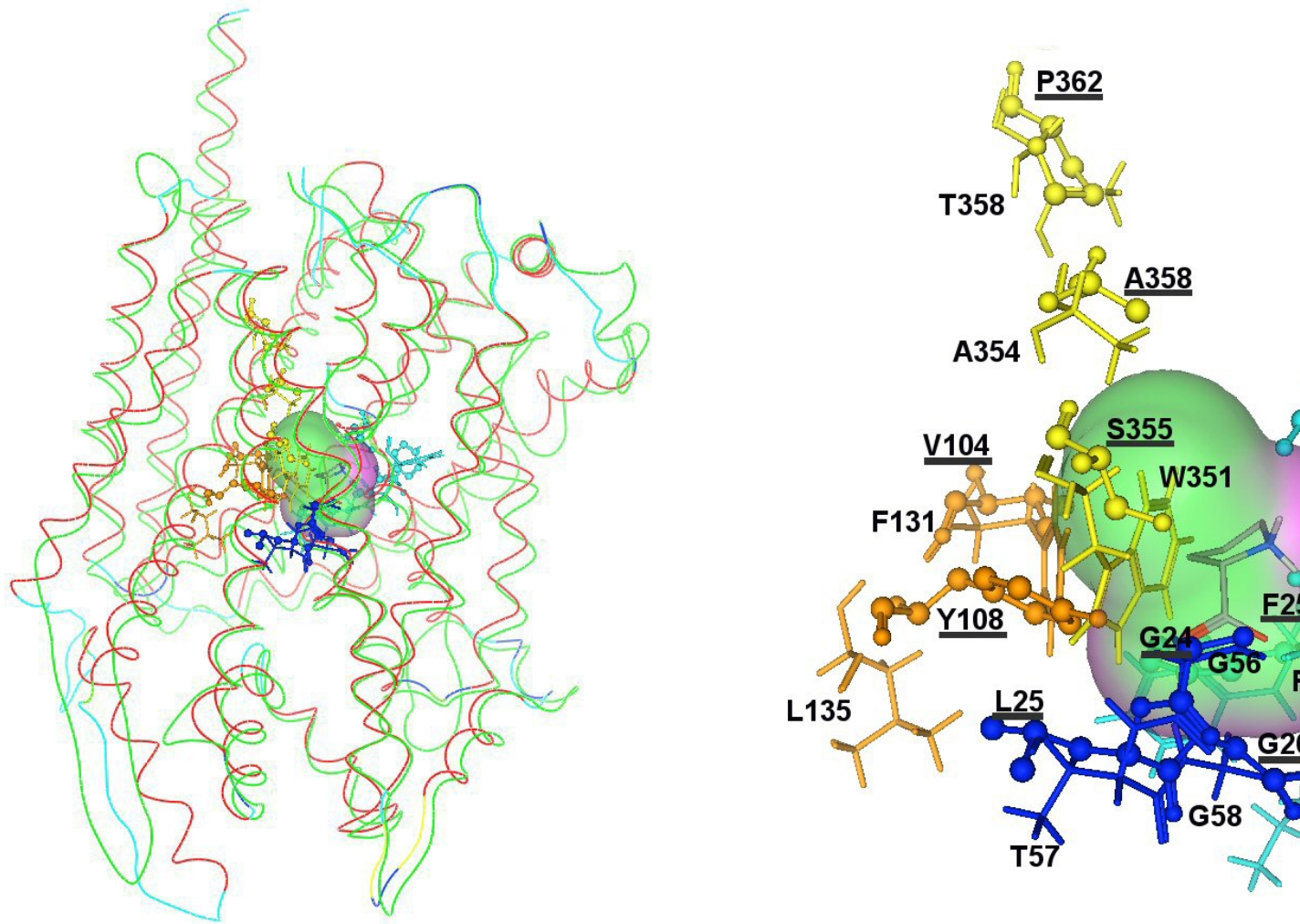
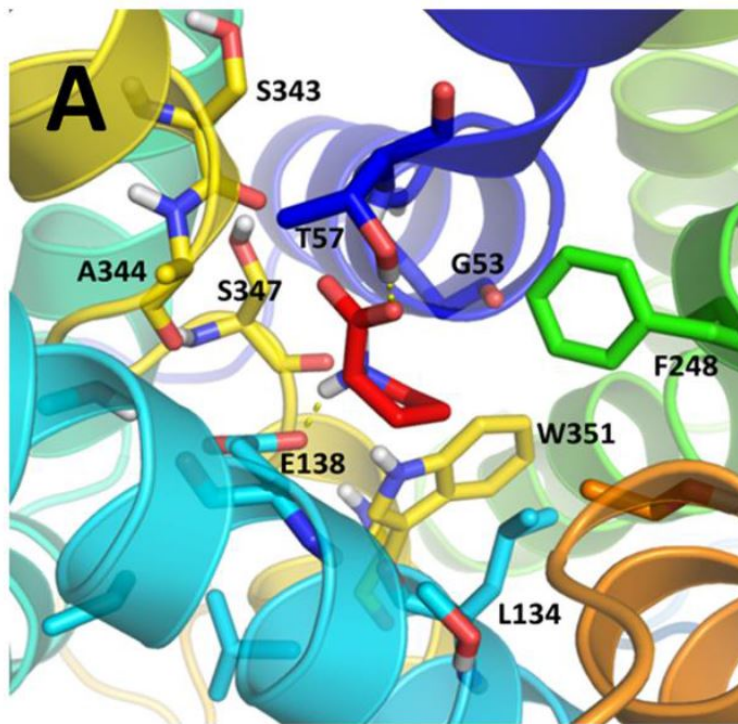
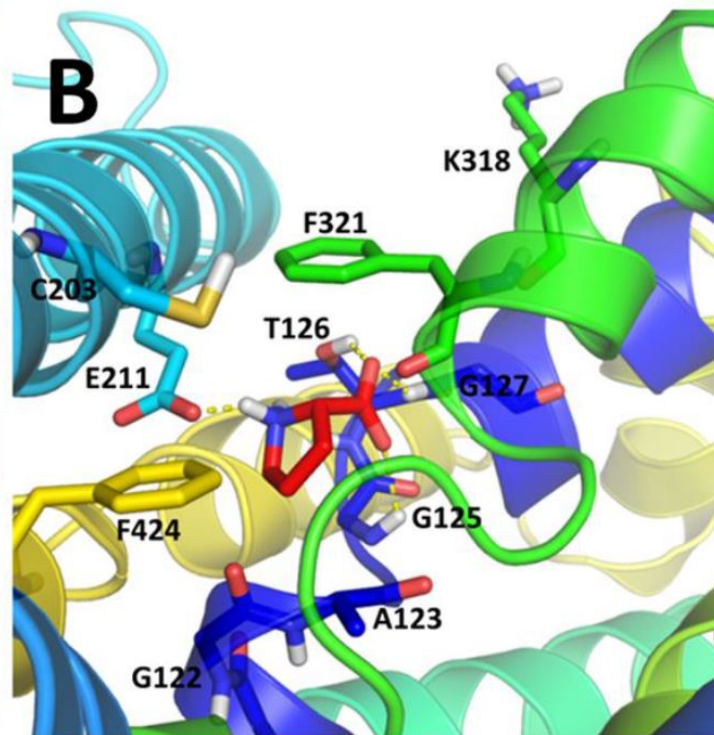


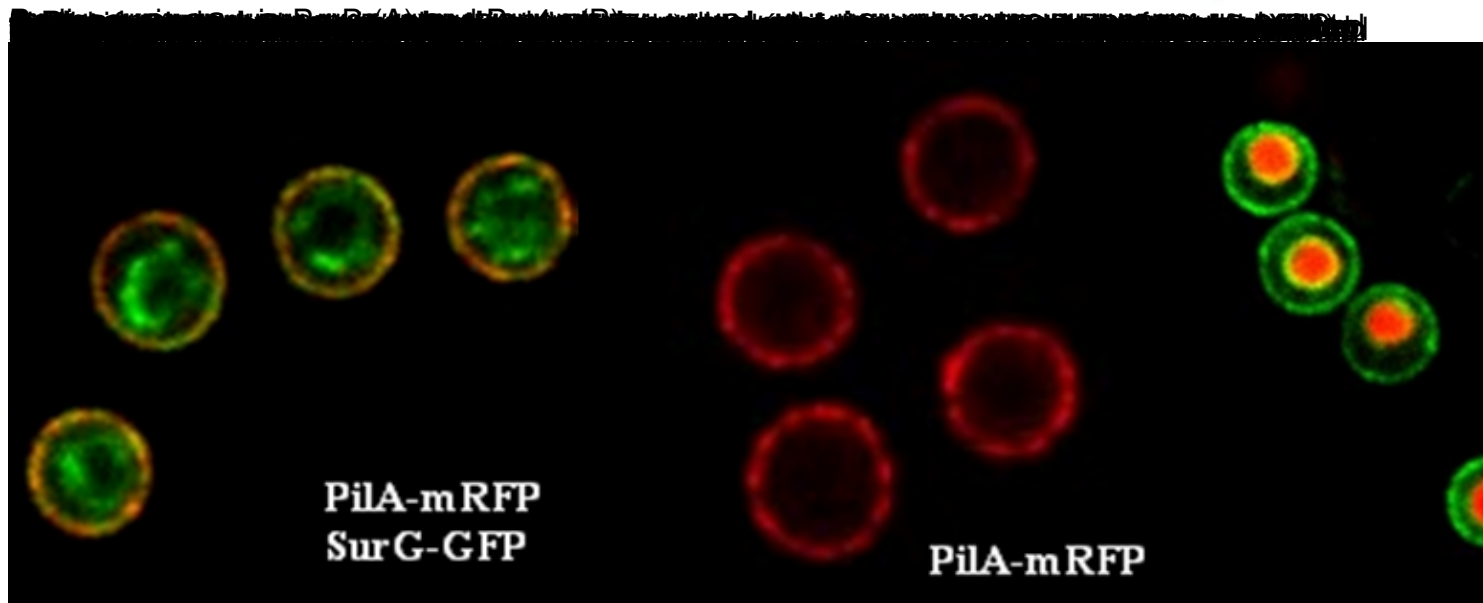
Figure 1. 3D molecular model of the protein-ligand complex. The protein structure is shown as a ribbon diagram, and the ligand structure is shown as a stick model. The inset shows the binding site with various residues labeled.

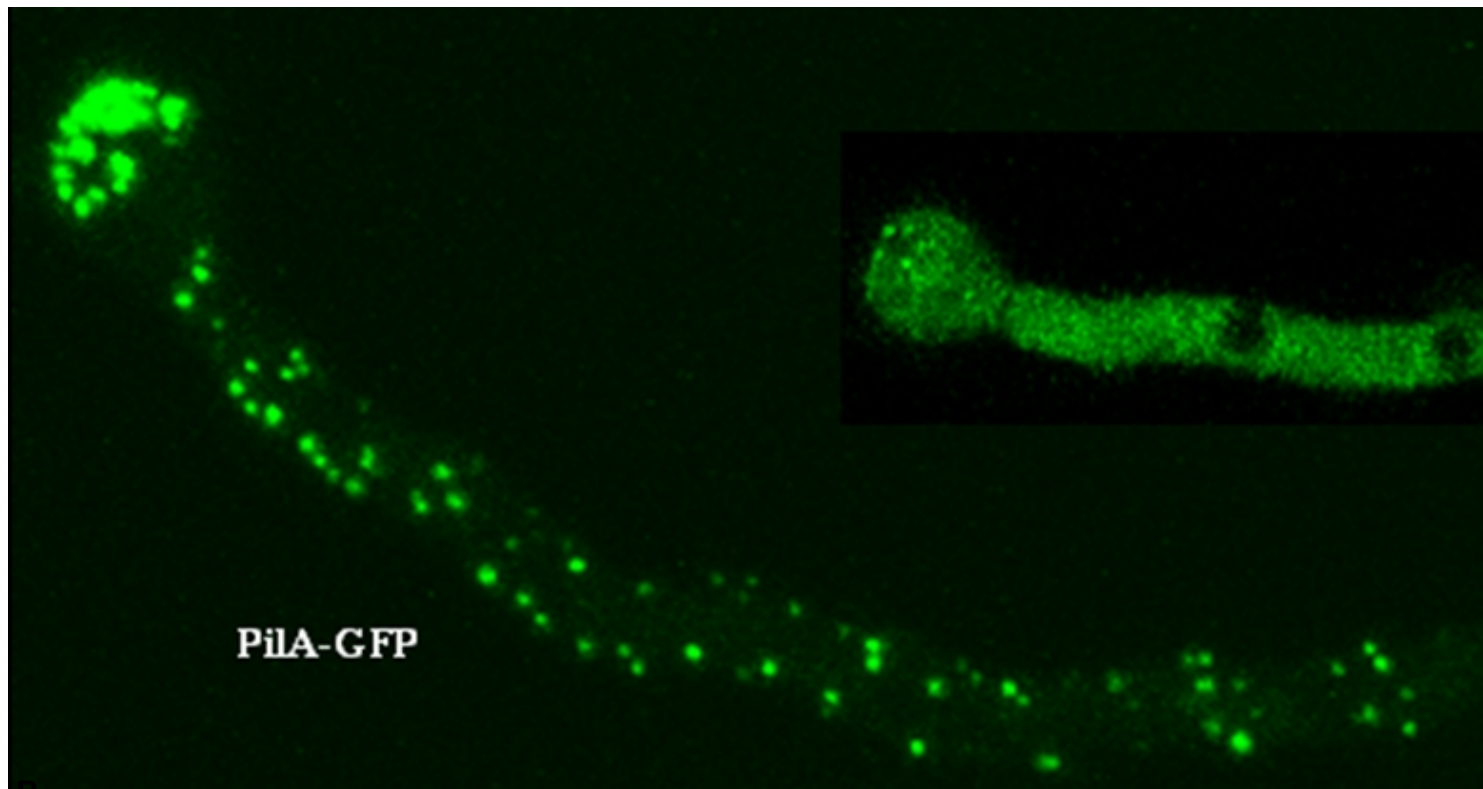


PrnB

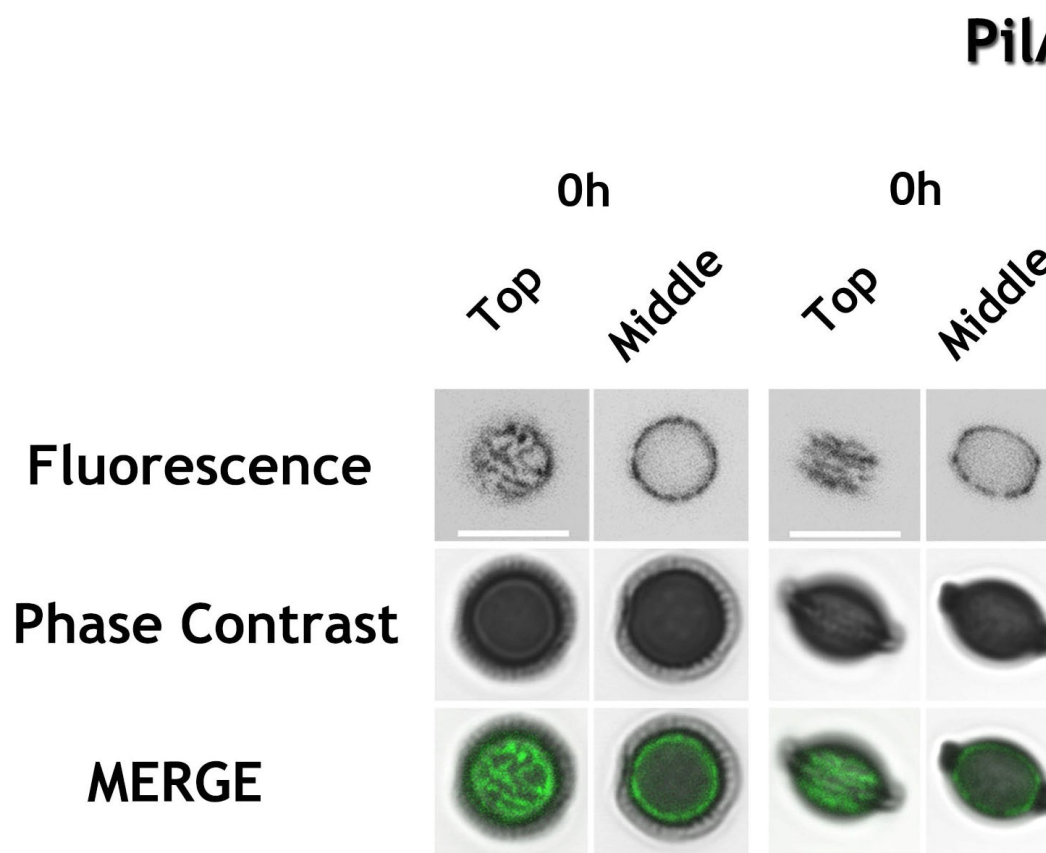


Put4p





B.



Fluorescence microscopy is a technique used to visualize the localization of specific proteins within a cell. In this case, the protein PiLA-GFP is being visualized. The images show that PiLA-GFP is localized to the cell periphery, as indicated by the green spots in the 'Top' and 'Middle' regions of the 'Fluorescence' row. The 'Phase Contrast' row shows the cell's morphology, and the 'MERGE' row shows the green spots overlaid on the phase contrast image. A scale bar is visible in the bottom left of the first 'Top' '0h' fluorescence image.