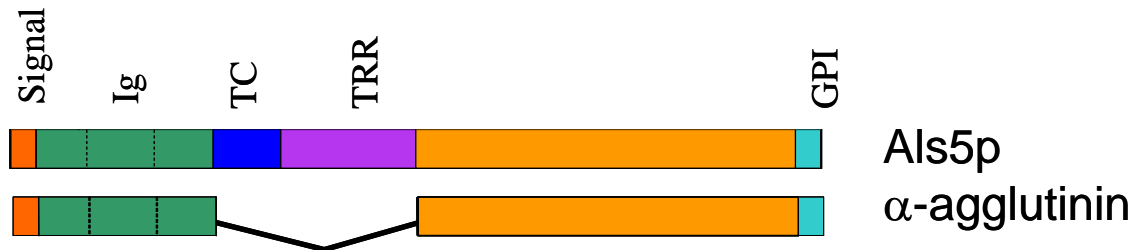


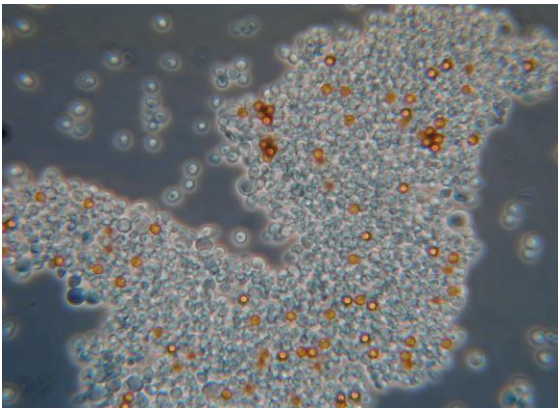
CANDIDA ALBICANS ALS PROTEINS

The *C. albicans* ALS gene family encodes proteins that are homologous to *S. cerevisiae* alpha-agglutinin:



But these proteins bind the yeast to us for commensal and pathological relationships. With Drs. Nand Gaur and Steve Klotz, we are dissecting how the various domains of these proteins interact with human host proteins and with other fungal and bacterial proteins. These interactions facilitate invasion of the host and colony formation and formation of microbial biofilms that are resistant to anti-fungal treatments. Therefore, interfering with these processes will help fight fungal infections, which actually kill many patients with chronic conditions such as AIDS and leukemia.

Als proteins bind to many mammalian proteins (coated on the brown-gold beads in this picture) then cause the yeast to stick to each other. The binding causes a conformational change, which results in increased fluorescence by ANS, a dye that binds to hydrophobic regions of proteins.



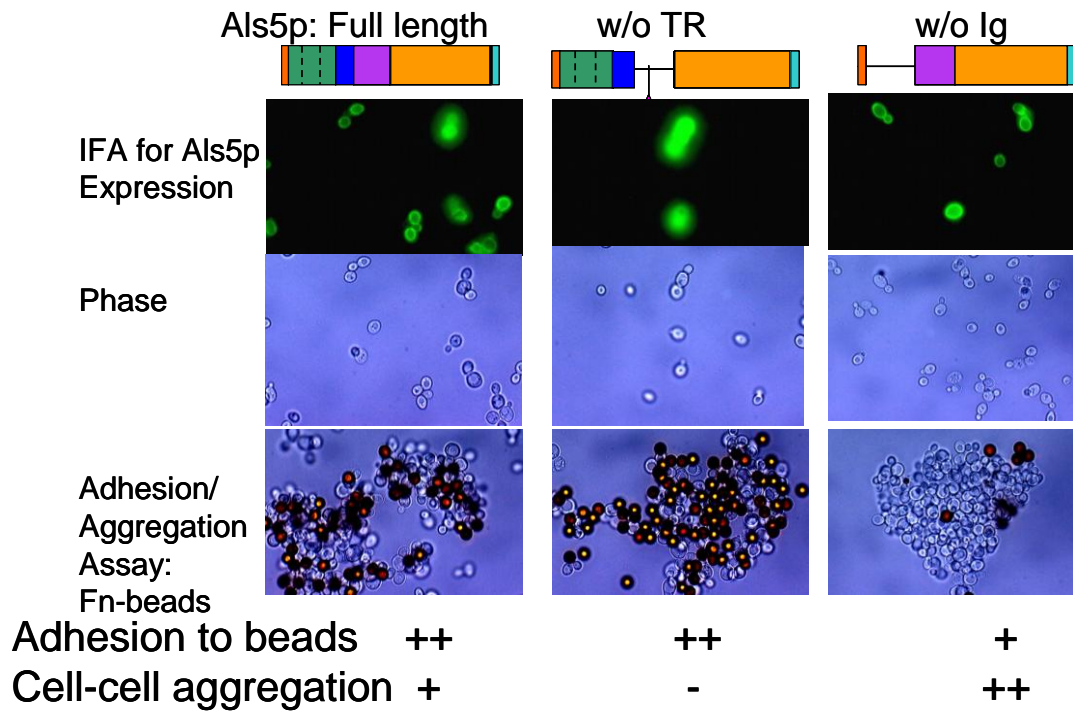
[Gaur NK, Klotz SA, Henderson RL.](#) Overexpression of the *Candida albicans* ALA1 gene in *Saccharomyces cerevisiae* results in aggregation following attachment of yeast cells to extracellular matrix proteins, adherence properties similar to those of *Candida albicans*. *Infect Immun.* 1999 Nov;67(11):6040-7.

[Klotz, S.A., N.K. Gaur, D.F. Lake, V. Chan, J. Rauceo, and P.N. Lipke. 2004.](#) Degenerate Peptide Recognition by *Candida albicans* Adhesins Als5p and Als1p. *Infect. Immun.* 72: 2029-2034

[Rauceo, J., N.K. Gaur, S.A. Klotz, K.-G. Lee, and P.N. Lipke. 2004.](#) Global

Cell-surface Conformational Shift Mediated by a *Candida* Adhesin.
Infect. Immun. 72: 4948-4955.

The Ig-like (green) and TC (blue) and TRR regions (purple) participate in this binding and yeast aggregation.



[Rauceo JM, De Armond R, Otoo H, Kahn PC, Klotz SA, Gaur NK, Lipke PN. 2006](#) Threonine-rich repeats increase fibronectin binding in the *Candida albicans* adhesin Als5p. *Eukaryot Cell.* 5:1664-73.