

# Fungus found in humans shown to be nimble in mating game

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Richard Bennett is an assistant professor of biology of molecular microbiology and immunology. Credit: Photo Provided

Brown University researchers have discovered that *Candida albicans*, a human fungal pathogen that causes thrush and other diseases, pursues same-sex mating in addition to conventional opposite-sex mating.

Scientists have observed this same-sex mode of reproduction in other [fungi](#), but this is the first time they have identified it in *Candida albicans*, the most common human fungal pathogen.

Details are highlighted in the August 2009 edition of the journal *Nature*.

"This discovery really surprised us," said Richard Bennett, assistant professor of biology in the Department [Molecular Microbiology](#) and Immunology at Brown. "*Candida albicans* has two [mating](#) types — a and alpha — and it was assumed that mating could only occur between these two cell types. We now know that a mechanism exists for same-sex mating, and thus sex could be more prevalent in this species than previously recognized."

Bennett is the paper's senior author, and graduate student Kevin Alby is first author. Research assistant Dana Schaefer also contributed.

Bennett said his lab learned the mechanisms of sexual reproduction for *Candida albicans* are both more varied and interesting than previously thought. Researchers also showed that the mechanism by which same-sex mating is driven involves high levels of mating pheromones.

Bennett sees his lab's findings as suggesting that sex can take place within a unisexual population — populations once thought to be completely asexual because they have only one of the two sexes. This can increase the opportunities for sex in natural populations of *Candida* cells.

The findings have broader implications for how sex occurs in related species that only have one sex.

"We are trying to demonstrate that these single-sex species have the same mechanism of [pheromone](#) signaling that we have uncovered in *Candida albicans*," Bennett said.

Researchers conducting their study used 19 specimens, or isolates, of *Candida albicans* during the two years of the project. The samples are single-celled yeast related to baker's yeast (*Saccharomyces cerevisiae*), about several microns across. One cell is too small to see with the naked

eye, but colonies of thousands of cells can be easily viewed.

The Bennett lab's findings parallel another interesting case of same-sex mating in a common fungal human pathogen, *Cryptococcus neoformans*. This species is unrelated to *Candida albicans*, which suggests same-sex mating has evolved in two divergent pathogens.

With that in mind, Bennett said his finding means that unisexual reproduction could be important for microbial pathogenesis.

Source: Brown University ([news](#) : [web](#))

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