

PublisherInfo		
PublisherName	:	BioMed Central
PublisherLocation	:	London
PublisherImprintName	:	BioMed Central

Yeasts: the basis for new vaccines

ArticleInfo		
ArticleID	:	4074
ArticleDOI	:	10.1186/gb-spotlight-20010503-01
ArticleCitationID	:	spotlight-20010503-01
ArticleSequenceNumber	:	145
ArticleCategory	:	Research news
ArticleFirstPage	:	1
ArticleLastPage	:	2
ArticleHistory	:	RegistrationDate : 2001-05-03 OnlineDate : 2001-05-03
ArticleCopyright	:	BioMed Central Ltd2001
ArticleGrants	:	
ArticleContext	:	130592211

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Efficient cell-mediated immunity requires the activation of dendritic cells (DC). Currently there is a great deal of interest in vaccine strategies that employ DC immunostimulatory complexes. In the May issue of *Nature Medicine*, Andrew Stubbs and colleagues from the [University of Colorado Health Sciences Center](#), Denver, suggest that genetically engineered yeast may be capable of acting as an immunostimulatory complex.

Stubbs *et al.* demonstrate that recombinant *Saccharomyces cerevisiae* engineered to express tumor or HIV-1 antigens are capable of eliciting cytotoxic T lymphocyte-mediated responses and protective immunity in mice. Interactions between yeast and DCs led to DC maturation, IL-12 production and the efficient priming of MHC class I- and class II-restricted, antigen-specific T-cell responses (*Nat Med* 2001, 7:625-629).

Yeast also exerted a strong adjuvant effect, augmenting DC presentation of the exogenous whole-protein antigen to MHC class I- and class II-restricted T cells. This suggests that recombinant yeast may be a good candidate for the development of a vaccine-mediated strategy to induce efficient and long lasting cellular immune responses.

References

1. Stubbs AC, Martin KS, Coeshott C, Skaates SV, Kuritzkes DR, Bellgrau D, Franzosoff A, Duke RC, Wilson CC: Whole recombinant yeast vaccine activates dendritic cells and elicits protective cell-mediated immunity. *Nat Med* 2001, 7:625-629., [<http://www.nature.com/nm>]
2. University of Colorado Health Sciences Center, [<http://www.uchsc.edu/home/>]