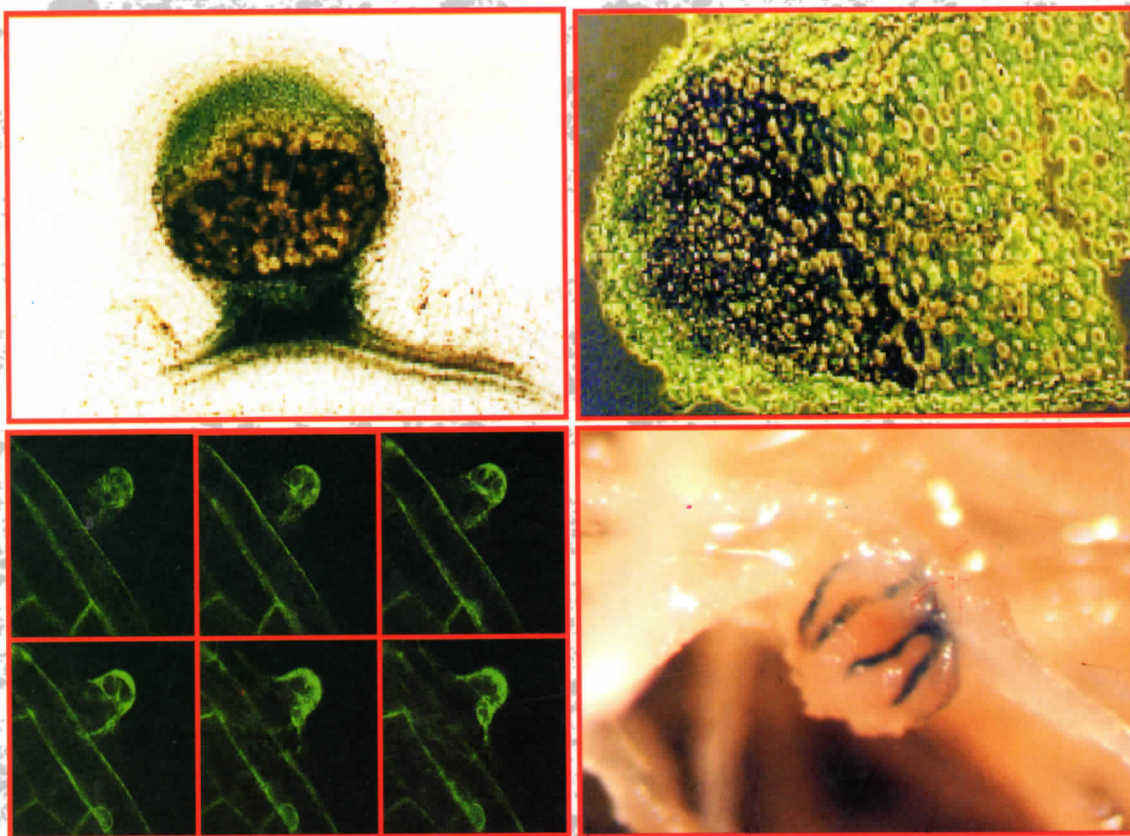


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CONGRESOS Y JORNADAS

FOURTH EUROPEAN NITROGEN FIXATION CONFERENCE

September 16-20/2000
Sevilla - Spain



Comunidad Europea



JUNTA DE ANDALUCÍA

Consejería de Agricultura y Pesca

S4-P24

INTERACTION BETWEEN THE NITROGEN REGULATOR NtrC AND THE NUCLEOID ASSOCIATED CHAPERONE CbpA

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In *Klebsiella pneumoniae*, the NtrB-NtrC two-component system mediates the response to nitrogen availability. NtrC is the transcriptional regulator of the system, its activity being dependent of the bifunctional histidine-kinase NtrB.

After showing the usefulness of the yeast two-hybrid system to probe interactions between NtrB and NtrC domains, we have used *Klebsiella pneumoniae* NtrC to screen an *E. coli* genomic library for additional interacting partners. We reasoned that we may identify proteins that could then provide new insights into signal transduction by two-component systems and/or nitrogen metabolism regulation in enterobacteria.

Using a GAL4BD-NtrC fusion as a bait to screen a GAL4AD library in *Saccharomyces cerevisiae* JPJ96, we isolated a positive clone. The specificity of the interaction with NtrC was confirmed using different GAL4BD fusion proteins and additional reporter genes. Sequencing of the activating clone identified the protein as CbpA, first characterised as a curved-DNA binding protein. Expression of CbpA, an analogue of the molecular chaperone DnaJ, is induced by the entry of cells into stationary phase or growth under certain nutrient-limited conditions, but not by nitrogen starvation.

We report data on protein-protein interactions between CbpA and NtrC domains and show the effect of *cbpA*, *dnaJ*, *dnaK* and *GrpE* null mutations on transcriptional activation by NtrC using fusions of NtrC regulated promoters (*glnAp1*, *glnAp2*, *ntrB* and *nifLA*) to *lacZ*.