

1. Molecular bioenergetics

Poster session 1.1. Respiratory chain

P1.1.1. A PROTEOMIC STUDY OF COMPLEX I FROM THE AEROBIC YEAST *YARROWIA LIPOLYTICA*

A. Abdrakhmanova, A. Galkin, H. Schaegger, S. Kerscher, U. Brandt

Universitaet Frankfurt, Zentrum der Biologischen Chemie, Molekulare Bioenergetik, Frankfurt am Main, Germany
abdrak@zbc.kgu.de

NADH:ubiquinone oxidoreductase (complex I) is a very large multiprotein complex of the mitochondrial respiratory chain. In previous studies, the genes for 37 complex I subunits were identified in the *Y. lipolytica* mitochondrial and nuclear genomes. Most of the corresponding proteins could be detected using a combination of doubled SDS PAGE and MALDI-TOF MS [1,2]. A rhodanese-like protein which was found in the purified enzyme may be regarded as the 38th subunits of *Y. lipolytica* complex I [3]. Using MALDI-TOF-MS and tandem mass spectrometry, we have now extended the proteomic study of *Y. lipolytica* complex I, with the following aims: (i) confirm the presence of further subunits in complex I which were found in the genome of *Y. lipolytica*, (ii) search for post-translational modifications of individual subunits, (iii) establish the topology of subunits using limited proteolysis of *Y. lipolytica* complex I reconstituted into proteoliposomes.

References:

- [1] A. Abdrakhmanova, V. Zickermann, M. Bostina, M. Radermacher, H. Schägger, S. Kerscher and U. Brandt. 2004. Subunit composition of mitochondrial complex I from the yeast *Yarrowia lipolytica*. *Biochim. Biophys. Acta*, 1658:148-156.
- [2] U. Brandt, A. Abdrakhmanova, V. Zickermann, A. Galkin, S. Dröse, K. Zwicker and S. Kerscher. 2005. Structure/ Function relationships in mitochondrial complex I of the strictly aerobic yeast *Yarrowia lipolytica*. *Biochem. Soc. Trans.*, 33:840-844.
- [3] A. Abdrakhmanova, K. Dobrynin, K. Zwicker, S. Kerscher and U. Brandt. 2005 Functional sulfurtransferase is associated with mitochondrial complex I from *Yarrowia lipolytica*, but is not required for assembly of its iron-sulfur clusters. *FEBS Lett.* 19:6781-6785.