

**P023** A powerful proteomic approach to characterize membrane-embedded complexes

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Blue native gels, a method developed for isolation of native protein complexes from membrane, combined with detection of in-gel enzymatic activities and mass spectrometry protein identification, allowed us to better characterized functional respiratory complexes as well as identify novels protein-protein interactions in membranes of the hyperthermophilic bacterium *Aquifex aeolicus* cultivated with  $H_2/O_2/S^0$ . We have evidenced or confirmed the presence of two membrane-attached hydrogenases, the sulfur reductase Sre, the  $bc_1$  complex, the NADH-dehydrogenase, the Sulfide quinone reductase, the membrane-bound cytochrome  $c_{555}^m$ , a cytochrome c oxidase, a quinol oxidase and the ATP synthase. The subunits compositions of some of these complexes have been more precisely described. Our results undoubtedly show that two versions of subunits constituting the Q module of NADH dehydrogenase (namely I and D) are present in our sample leading to the conclusion of the existence of several isoforms of complex I in membranes.

In addition, a new stable supercomplex of about 600 kDa, resulting from association of individual respiratory enzymes and complexes and potentially involved in oxygen reduction, has been evidenced. This approach is likewise used for characterization of complexes present in membranes of the acidophilic archae *Ferroplasma acidiphilum*.