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1P.45 Purification and characterisation of complex I from *Paracoccus denitrificans*

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Complex I is a multisubunit integral membrane protein which catalyses the transfer of 2 electrons from NADH to ubiquinone coupled to the translocation of about 4 protons across the membrane. It is the first enzyme in the electron transport chain and along with complex III and IV, it provides the proton motive force required for

ATP synthesis. There is a lack of knowledge regarding the structure and mechanism of complex I and research is hindered by the difficulty in isolating stable protein. Here we show the purification of complex I from *Paracoccus denitrificans* where 13 out of the 14 “core” subunits have been identified by mass spectrometry. Initial single particle analysis studies show the protein to be L-shaped. This L-shape is consistent with EM studies of complex I from other studies. The protein has ubiquinone reductase activity and is inhibited by piericidin A indicating the protein is intact and active. Further studies should enable the other bands in the SDS-gel to be identified and more work will be done on increasing the yield and purity for structural and functional studies.

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