

Crystal structure of Psb27 from *T. elongatus* and its association with dimeric PSII

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Several cyanobacterial proteins have recently been identified as playing accessory roles in Photosystem II, either regulating activity or involved in the assembly and repair of the complex. These proteins include Psb27, Psb28, Psb29, CyanoP and CyanoQ. Psb27 is a small lipoprotein which is thought to bind to the luminal side of monomeric PSII core complexes, preventing binding of the PsbO, PsbU and PsbV extrinsic proteins (Nowaczyk et al., 2006). Psb27 has been assigned a role in regulating the assembly of the CaMn₄ cluster involved in water oxidation (Roose and Pakrasi, 2008). To gain a better understanding of Psb27 in *Thermosynechococcus elongatus*, we have determined the crystal structure of the soluble domain of Psb27 from this organism to a resolution of 1.9Å. As expected, the structure is a four-helices bundle, similar to the recently published structures of Psb27 from *Synechocystis* 6803 obtained by NMR (Cormann et al., 2009; Mabbitt et al., 2009). Differences to the NMR-derived structures will be discussed. In addition, immunoblotting experiments combined with Blue native/PAGE indicate that Psb27 is a component of dimeric PSII complexes, not just monomeric complexes.

References

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Key words: Assembly factor, Psb27, X-ray crystallography.