

Dear Colleagues,

Photosystem I is a large protein-cofactor super-complex fundamental component of the electron transport chain of oxygen-evolving photosynthetic organisms, and it can operate either in series with Photosystem II in the linear electron transport chain, or independently from Photosystem II in a cyclic transport. Photosystem I is known to operate with a photochemical quantum conversion yield close to the unit, which makes it an attractive system for the development of biological-mimicking artificial molecules and devices. In Photosystem I, two structurally symmetric electron transfer chains operate in electron transfer through the so-called bidirectional mechanism, which distinguishes it from both PSII and its homologue, the purple bacteria reaction centre. However, despite intense research over several decades, some of the key mechanisms concerning the primary photochemical conversion reactions, the energy of successive electron transfer cascade, and the mechanisms controlling the functionality of the two active electron transfer branches remain to be fully elucidated. Furthermore, the partners and mechanism of cyclic electron transfer in the thylakoid membranes, and the physiological role of this transport mechanism, remain to be fully established.

This Special Issue for IJMS aims at gathering contributions aiming at improving the understanding of the molecular mechanism of light harvesting, photochemical energy conversion, electron transfer and electron transport reaction involving Photosystem I.

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Guest Editors