

# [MOBI] Photosystem Ii The Light Driven Waterplastoquinone Oxidoreductase Advances In Photosynthesis And Respiration V 2

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Photosystem II-T. Wydrzynski 2006-01-27 The most mysterious part of photosynthesis yet the most important for all aerobic life on Earth (including ourselves) is how green plants, algae and cyanobacteria make atmospheric oxygen from water. This thermodynamically difficult process is only achieved in Nature by the unique pigment/protein complex known as Photosystem II, using sunlight to power the reaction. The present volume contains 34 comprehensive chapters authored by 75 scientific experts from around the world. It gives an up-to-date account on all what is currently known about the molecular biology, biochemistry, biophysics and physiology of Photosystem II. The book is divided into several parts detailing the protein constituents, functional sites, tertiary structure, molecular dynamics, and mechanisms of homeostasis. The book ends with a comparison of Photosystem II with other related enzymes and bio-mimetic systems. Since the unique water-splitting chemistry catalyzed by Photosystem II leads to the production of pure oxygen gas and has the potential for making hydrogen gas, a primary goal of this book is to provide a molecular guide to future protein engineers and bio-mimetic chemists in the development of biocatalysts for the generation of clean, renewable energy from sunlight and water.

Photosystem I-John H. Golbeck 2007-05-20 This book summarizes recent advances made in the biophysics, biochemistry, and molecular biology of the enzyme known as Photosystem I, the light-induced plastocyanin: ferredoxin oxidoreductase. The volume provides a unique compilation of chapters that includes information highlighting controversial issues to indicate the frontiers of research and places special emphasis on methodology and practice for new researchers.

Photosynthesis-Julian J. Eaton-Rye 2011-11-04 "Photosynthesis: Plastid Biology, Energy Conversion and Carbon Assimilation" was conceived as a comprehensive treatment touching on most of the processes important for photosynthesis. Most of the chapters provide a broad coverage that, it is hoped, will be accessible to advanced undergraduates, graduate students, and researchers looking to broaden their knowledge of photosynthesis. For biologists, biochemists, and biophysicists, this volume will provide quick background understanding for the breadth of issues in photosynthesis that are important in research and instructional settings. This volume will be of interest to advanced undergraduates in plant biology, and plant biochemistry and to graduate students and instructors wanting a single reference volume on the latest understanding of the critical components of photosynthesis.

Assembly of the Photosystem II Membrane-Protein Complex of Oxygenic Photosynthesis-Julian J. Eaton-Rye 2017-08-08 Photosystem II is a 700-kDa membrane-protein super-complex responsible for the light-driven splitting of water in oxygenic photosynthesis. The photosystem is comprised of two 350-kDa complexes each made of 20 different polypeptides and over 80 co-factors. While there have been major advances in understanding the mature structure of this photosystem many key protein factors involved in the assembly of the complex do not appear in the holoenzyme. The mechanism for assembling this super-complex is a very active area of research with newly discovered assembly factors and subcomplexes requiring characterization. Additionally the ability to split water is inseparable from light-induced photodamage that arises from radicals and reactive O2 species generated by Photosystem II chemistry. Consequently, to sustain water splitting, a "self repair" cycle has evolved whereby damaged protein is removed and replaced so as to extend the working life of the complex. Understanding how the biogenesis and repair processes are coordinated is among several important questions that remain to be answered. Other questions include: how and when are the inorganic cofactors inserted during the assembly and repair processes and how are the subcomplexes protected from photodamage during assembly? Evidence has also been obtained for Photosystem II biogenesis centers in cyanobacteria but do these also exist in plants? Do the molecular mechanisms associated with Photosystem II assembly shed fresh light on the assembly of other major energy-transducing complexes such as Photosystem I or the cytochrome b6/f complex or indeed other respiratory complexes? The contributions to this Frontiers in Plant Science Research Topic are likely to reveal new details applicable to the assembly of a range of membrane-protein complexes, including aspects of self-assembly and solar energy conversion that may be applied to artificial photosynthetic systems. In addition, a deeper understanding of Photosystem II assembly — particularly in response to changing environmental conditions — will provide new knowledge underpinning photosynthetic yields which may contribute to improved food production and long-term food security.

Competition Science Vision- 2004-10 Competition Science Vision (monthly magazine) is published by Pratiyogita Darpan Group in India and is one of the best Science monthly magazines available for medical entrance examination students in India. Well-qualified professionals of Physics, Chemistry, Zoology and Botany make contributions to this magazine and craft it with focus on providing complete and to-the-point study material for aspiring candidates. The magazine covers General Knowledge, Science and Technology news, Interviews of toppers of examinations, study material of Physics, Chemistry, Zoology and Botany with model papers, reasoning test questions, facts, quiz contest, general awareness and mental ability test in every monthly issue.

Molecular Mechanisms of Photosynthesis-Robert E. Blankenship 2014-02-24 The classic and authoritative textbook, Molecular Mechanisms of Photosynthesis, is now fully revised and updated in this much-anticipated second edition. Whilst retaining the first edition's clear writing style and accessible description of this complex process, updates now include cutting-edge applications of photosynthesis, such as to bioenergy and artificial photosynthesis as well as new analytical techniques. Written by a leading authority in photosynthesis research, this new edition is presented in full color with clear, student-friendly illustrations. An interdisciplinary approach to photosynthesis is taken, with coverage including the basic principles of energy storage, the history and early development of photosynthesis, electron transfer pathways, genetics and evolution. A comprehensive appendix, containing an introduction to the basic chemical and physical principles involved in photosynthesis, is also included. Molecular Mechanisms of Photosynthesis, second edition, is an indispensable text for all students of plant biology, bioenergy, and molecular biology, in addition to researchers in these and related fields looking for an accessible introduction to this vital and integral process to life on earth, stresses an interdisciplinary approach emphasizes recent advances in molecular structures and mechanisms includes the latest insights and research on structural information, improved techniques as well as advances in biochemical and genetic methods comprehensive appendix, which includes a detailed introduction to the physical basis of photosynthesis, including thermodynamics, kinetics, and spectroscopy associated website with downloadable figures as powerpoint slides for teaching

Hydrogen Bonding and Transfer in the Excited State-Ke-Li Han 2011-03-16 This book gives an extensive description of the state-of-the-art in research on excited-state hydrogen bonding and hydrogen transfer in recent years. Initial chapters present both the experimental and theoretical investigations on the excited-state hydrogen bonding structures and dynamics of many organic and biological chromophores. Following this, several chapters describe the influences of the excited-state hydrogen bonding on various photophysical processes and photochemical reactions, for example: hydrogen bonding effects on fluorescence emission behaviors and photoisomerization; the role of hydrogen bonding in photosynthetic water splitting; photoinduced electron transfer and solvation dynamics in room temperature ionic liquids; and hydrogen bonding barrier crossing dynamics at bio-mimicking surfaces. Finally, the book examines experimental and theoretical studies on the nature and control of excited-state hydrogen transfer in various systems. Hydrogen Bonding and Transfer in the Excited State is an essential overview of this increasingly important field of study, surveying the entire field over 2 volumes, 40 chapters and 1200 pages. It will find a place on the bookshelves of researchers in photochemistry, photobiology, photophysics, physical chemistry and chemical physics.

Dynamics of the Light-induced Inactivation of Photosystem II in Vivo-Irene ZMabel Baroli 1998

Issues in Biochemistry and Biophysics Research: 2012 Edition- 2013-01-10 Issues in Biochemistry and Biophysics Research: 2012 Edition is a ScholarlyEditions™ eBook that delivers timely, authoritative, and comprehensive information about Biological Crystallography. The editors have built Issues in Biochemistry and Biophysics Research: 2012 Edition on the vast information databases of ScholarlyNews.™ You can expect the information about Biological Crystallography in this eBook to be deeper than what you can access anywhere else, as well as consistently reliable, authoritative, informed, and relevant. The content of Issues in Biochemistry and Biophysics Research: 2012 Edition has been produced by the world's leading scientists, engineers, analysts, research institutions, and companies. All of the content is from peer-reviewed sources, and all of it is written, assembled, and edited by the editors at ScholarlyEditions™ and available exclusively from us. You now have a source you can cite with authority, confidence, and credibility. More information is available at <http://www.ScholarlyEditions.com/>.

Photosynthesis. Energy from the Sun-John F. Allen 2008-09-20 The Proceedings of the 14th International Congress on Photosynthesis is a record of the most recent advances and emerging themes in the discipline. This volume contains over 350 contributions from some 800 participants attending the meeting in Glasgow, UK in July 2007. These range from summary overview presentations from plenary speakers to expanded content of posters presented by students and their supervisors featuring the most recent achievements in photosynthesis research. In the words of Professor Eva-Mari Aro, President of the international Society of Photosynthesis Research 2004-7, "Having been taken for granted for centuries, research in photosynthesis has now become a matter of utmost importance for the future of planet Earth...Major initiatives are underway that will use research into natural and artificial photosynthesis for sustainable energy production....". These volumes thus provide a glimpse of the future, from the molecule to the biosphere

Light Stress and Photosystem II-Torill Hundal 1992

Handbook of Plant and Crop Physiology-Mohammad Pessaraki 2001-09-18 With contributions from over 70 international experts, this reference provides comprehensive coverage of plant physiological stages and processes under both normal and stressful conditions. It emphasizes environmental factors, climatic changes, developmental stages, and growth regulators as well as linking plant and crop physiology to the production of food, feed, and medicinal compounds. Offering over 300 useful tables, equations, drawings, photographs, and micrographs, the book covers cellular and molecular aspects of plant and crop physiology, plant and crop physiological responses to heavy metal concentration and agrichemicals, computer modeling in plant physiology, and more.

Bioenergetics-Günter Schäfer 2008-05-24 The fermentation of sugar by cell-free yeast extracts was demonstrated more than a century ago by E. Buchner (Nobel Prize 1907). Buchner's observations put an end to previous animistic theories regarding cellular life. It became clear that metabolism and all cellular functions should be accessible to explication in chemical terms. Equally important for an understanding of living systems was the concept, explained in physical terms, that all living things could be cons- ered as energy converters [E. Schrödinger (Nobel Prize 1933)] which generate complexity at the expense of an increase in entropy in their environment. Bioenergetics was established as an essential branch of the biochemical sciences by the investigations into the chemistry of photosynthesis in i- lated plant organelles [O. Warburg (Nobel Prize 1931)] and by the discovery that mitochondria were the morphological equivalent that catalyzed cellular respiration. The ?eld of bioenergetics also encompasses a large variety of ad- tional processes such as the molecular mechanisms of muscle contraction, the structure and driving mechanisms of microbial ?agellar motors, the energetics of solute transport, the extrusion of macromolecules across membranes, the transformation of quanta of light into visual information and the maintenance of complex synaptic communications. There are many other examples which, in most cases, may perform secondary energy transformations, utilizing - ergy stored either in the cellular ATP pool or in electrochemical membrane potentials.

Biophysical and Structural Aspects of Bioenergetics-Mårten Wikström 2005-01-01 This book provides a representative snapshot of the very latest key developments in this multidisciplinary subject.

Applied Photosynthesis-Mohammad Najafpour 2016-03-30 Using the energy from sunlight, photosynthesis usually converts carbon dioxide into organic compounds, which are important for all living creatures. Photosynthesis is one of the most important reactions on Earth, and it is a scientific field that is intrinsically interdisciplinary, and many research groups have considered photosynthesis. The aim of this book is to provide new progresses on applied aspects of photosynthesis, and different research groups collected their voluble results from study of this interesting process. All sections have been written by experts in their fields, and book chapters present different and new subjects on photosynthesis.

Characterization of Light Harvesting Components and Modified Amino Acids of Photosystem II-Anthony Joseph Apollo Ouellette 2002

Energy Production and Storage-Robert H. Crabtree 2013-02-19 Energy production and storage are central processes for our time. In principle, abundant energy is available from the sun to run theearth in a sustainable way. Solar energy can be directly harnessedby agricultural and photovoltaic means, but the sheer scale of theenergy demand poses severe challenges, for example any majorcompetition between biomass production and food production wouldsimply transfer scarcity from energy to food. Indirect use of solarenergy in the form of wind looks also promising, especially forthose regions not blessed with abundant sunlight. Other modes suchas tidal and wave energy may well become important niche players. Inorganic chemistry plays a decisive role in the development ofnew energy technologies and this Volume covers somepromising modes of alternative energy production and storage thatminimize the atmospheric burden of fossil-derived carbon monoxide.No one production or storage mode is likely to dominate, at leasta first, and numerous possibilities need to be explored to comparetheir technical feasibility and economics. This provides thecontext for a broad exploration of novel ideas that we are likelyto see in future years as the field expands. This Volume covers a wide range of topics, such as: - Watersplitting, only water is a sufficiently cheap and abundant electronsource for global exploitation. - Energy conversion byphotosynthesis. - Molecular catalysts for water splitting. - Thermochemical water splitting. - Photocatalytic hydrogenproduction. - Artificial photosynthesis, progress of the Swedish Consortium. - Hydrogen economy. - Reduction of carbon dioxide to useful fuels. - Conversion of methane to methanol. - Dye sensitizedsolar cells. - Photoinitiated electron transfer in fuel cells. - Proton exchange membranes for fuel cells. - Intermediate-temperature solid oxide fuel cells. - Direct Ethanol fuel cells. -Molecular catalysis for fuel cells. - Enzymes and microbes in fuelcells. - Li-Ion batteries. - Magic Angle Spinning NMR studies ofbattery materials. Supercapacitors and electrode materials. About EIC Books The Encyclopedia of Inorganic Chemistry (EIC) has provedto be one of the defining standards in inorganic chemistry, andmost chemistry libraries around the world have access either to thefirst or second print edition, or to the online version. Manyreaders, however, prefer to have more concise thematic volumes,targeted to their specific area of interest. This feedback from EICreaders has encouraged the Editors to plan a series of EIC Books,focusing on topics of current interest. They will appear on aregular basis, and will feature leading scholars in their fields.Like the Encyclopedia, EIC Books aim to provide both the startingresearch student and the confirmed research worker with a criticaldistillation of the leading concepts in inorganic and bioinorganicchemistry, and provide a structured entry into the fieldsofcovered. This volume is also available as part of Encyclopedia ofInorganic Chemistry, 5 Volume Set. This set combines all volumes published as EIC Books from 2007 to 2010, representing areas of key developments in the field ofinorganic chemistry published in the Encyclopedia of Inorganic Chemistry. ahref="http://eu.wiley.com/WileyCDA/WileyTitle/productCd-1119994284.html"Findout more/a.

Molecular Mechanisms in Bioenergetics-L. Ernster 1992-12-16 This book summarises current knowledge of the structure, function, biosynthesis and regulation of energy-transducing enzymes imitochondria, chloroplasts and bacteria. Each of the twenty chapters is written by top experts in their field, and Prof. Ernster has ensured that the book as a whole gives a well-integrated picture of the present state of knowledge of the field at its different levels and complexities. Since the publication of Bioenergetics edited by Lars Ernster in 1984, (New Comprehensive Biochemistry Vol. 9) the whole field of bioenergetics has undergone a tremendous expansion. Additionally a transition from membrane bioenergetics to molecular bioenergetics has accompanied this expansion - due mainly to the spectacular progress in the field of molecular biology over the past twenty years. Hence this volume, Molecular Mechanisms in Bioenergetics, is certain to be of interest, not only to the specialist in bioenergetics, but also to researchers working in the various fields of biophysics, biochemistry, molecular biology, genetics, cell biology and physiology. Also of interest, this volume contains an historical introduction, including a list of earlier publications relating to the history of bioenergetics.

Chloroplasts: Advances in Research and Application: 2011 Edition- 2012-01-09 Chloroplasts: Advances in Research and Application: 2011 Edition is a ScholarlyPaper™ that delivers timely, authoritative, and intensively focused information about Chloroplasts in a compact format. The editors have built Chloroplasts: Advances in Research and Application: 2011 Edition on the vast information databases of ScholarlyNews.™ You can expect the information about Chloroplasts in this eBook to be deeper than what you can access anywhere else, as well as consistently reliable, authoritative, informed, and relevant. The content of Chloroplasts: Advances in Research and Application: 2011 Edition has been produced by the world's leading scientists, engineers, analysts, research institutions, and companies. All of the content is from peer-reviewed sources, and all of it is written, assembled, and edited by the editors at ScholarlyEditions™ and available exclusively from us. You now have a source you can cite with authority, confidence, and credibility. More information is available at <http://www.ScholarlyEditions.com/>.

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Photosynthetic Protein Complexes-Petra Fromme 2008-11-21 Perfectly timed, this handbook covers many important aspects of the topic that have only recently been understood – making this a truly comprehensive work. With its extensive use of color, it surveys the most important proteins involved in photosynthesis, discussing the structural information we have at our disposal. Most chapters are dedicated to one protein, while a few also summarize general associated concepts. The book also has an accompanying website that contains data files and animations to allow readers to visualize many of the complicated proteins presented. A must for anyone studying photosynthesis and structural biology, as well as those working in the plant and crop biotechnology industry.

Primary Processes of Photosynthesis-G. Renger 2008 This volume forms part of a two-volume set and is not available for individual purchase. Please view the complete pack (ISBN: 978-0-85404-364-4) for purchase options.

Transactions-Biochemical Society (Great Britain) 2006

Photosynthesis and the Environment-N.R. Baker 1996-11-30 Photosynthesis and the Environment examines how photosynthesis may be influenced by environmental changes. Structural and functional aspects of the photosynthetic apparatus are examined in the context of responses to environmental stimuli; particular attention being given to the processing of light energy by thylakoids, metabolic regulation, gas exchange and source-sink relations. The roles of developmental and genetic responses in determining photosynthetic performance are also considered. The complexity of the responses to environmental change is demonstrated by detailed analyses of the effects of specific environmental variables (light, temperature, water, CO2, ozone and UV-B) on photosynthetic performance. Where appropriate attention is given to recent developments in the techniques used for studying photosynthetic activities. The book is intended for advanced undergraduate and graduate students and a wide range of scientists with research interests in environmental effects on photosynthesis and plant productivity.

Continuous Wave and Pulsed EPR Spectroscopy of Oriented Photosystem II Membrane Proteins-David Michael Gingell 1998

Concepts in Photobiology-G. S. Singhal 1999 Photobiology is an important area of biological research since a very large number of living processes are either dependent on or governed by light that we receive from the Sun. Among various subjects, photosynthesis is one of the most important, and thus a popular topic in both molecular and organismic biology, and one which has made a considerable impact throughout the world since almost all life on Earth depends upon it as a source of food, fuel and oxygen. However, for growth of plants, light is equally essential, and research on photomorphogenesis has revealed exciting new developments with the application of newer molecular biological approaches. The present book brings together and integrates various aspects of photosynthesis, biology of pigments, light regulation of chloroplast development, nuclear and chloroplast gene expression, light signal transduction, other photomorphogenetic processes and some photoecological aspects under one cover. The chapters cover biochemical and molecular discussions of most of the above topics in a comprehensive manner and include a wide range of 'hot topics' that are currently under investigation in the field of photobiology of cyanobacteria, algae and plants. The authors of this book are selected international authorities in their fields from USA, Europe, Australia and Asia. The book is designed primarily to be used as a text book by graduates and post-graduates. It is, however, also intended to be a resource book for new researchers in plant photobiology. Several introductory chapters are designed as suitable reading for undergraduate courses in integrative and molecular biology, biochemistry and biophysics.

The Perception of Speech, from Sound to Meaning-Brian C. J. Moore 2008

Carbonic Anhydrase Activity and Possible Roles for Bicarbonate in Maize Photosystem II-Maria Boulos Moubarak 1995

Post-translational Modifications of Pigment-binding Proteins of Photosystem II-Stephen Mark Gómez 1998

Molecular Biology of the Cell-Bruce Alberts 2004

Handbook of Photosynthesis, Second Edition-Mohammad Pessaraki 1996-09-09 "Details all of the photosynthetic factors and processes under both normal and stressful conditions—covering lower and higher plants as well as related biochemistry and plant molecular biology. Contains authoritative contributions from over 125 experts in the field from 28 countries, and includes almost 500 drawings, photographs, micrographs, tables, and equations—reinforcing and clarifying important text material."

Biotechnological Applications of Photosynthetic Proteins-Maria Teresa Giardi 2007-04-03 Biotechnological Applications of Photosynthetic Proteins: Biochips, Biosensors and Biodevices provides an overview of the recent photosystem II research and the systems available for the bioassay of pollutants using biosensors that are based on the photochemical activity. The data presented in this book serves as a basis for the development of a commercial biosensor for use in rapid pre-screening analyses of photosystem II pollutants, minimising costly and time-consuming laboratory analyses.

Characterization of the Intrinsic 22kDa Polypeptide of Photosystem II -Sunyoung Kim 1994

Solar Energy Conversion-Gertz I. Likhtenshtein 2012-02-13 Finally filling a gap in the literature for a text that also adopts the chemist's view of this hot topic, Professor Likhtenshtein, an experienced author and internationally renowned scientist, considers different physical and engineering aspects in solar energy conversion. From theory to real-life systems, he shows exactly which chemical reactions take place when converting light energy, providing an overview of the chemical perspective from fundamentals to molecular harvesting systems and solar cells. This essential guide will thus help researchers in academia and industry better understand solar energy conversion, and so ultimately help this promising, multibillion dollar field to expand. From the contents: \* Electron Transfer Theories \* Principle Stages of Photosynthetic Light Energy Conversion \* Photochemical Systems of Light Energy Conversion \* Redox Processes on Surface of Semiconductors and Metals \* Dye-Sensitized Solar Cells \* Photocatalytic Reduction and Oxidation of Water

The Phototropic Prokaryotes-Günter A. Peschek 1999-01-31 Proceedings of the Ninth International Symposium held in Vienna, Austria, September 6-12, 1997

Advanced EPR studies of photosystem II and cytochrome c oxidase- 2003

Models for Electron Transfer in Photosystem II-Demetrios F. Ghanotakis 1984

The Alga Dunaliella-Ami Ben-Amotz 2009-01-05 This volume presents a state-of-the-art research in biochemistry, molecular biology and medical application. A glossary of specialized terms is appended. Each chapter is contributed by an expert or group of experts dedicated to increase our understanding of Dunaliella. All the chapters were reviewed internally by their colleagues, editors and external reviewers; this was followed by a final revision. The book provides a balanced multi-disciplinary communication and contributes to our understanding of this unique alga. It is addressed to graduate students and scientists as a summary of current thoughts on Dunaliella. Photosynthesis Research Protocols-Robert Carpenter 2004 This book offers a broad range of general and fundamental methods that are commonly used by plant biochemists, physiologists, and molecular biologists. It covers the key techniques for plant bioenergetics as well as those fundamental to plant productivity and biomass, making this an invaluable resource for scientists working on any of the multiple aspects of photosynthesis.

ZNC- 2006

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