

Contents

Vol. 80, No. 6, 2015

Simultaneous English language translation of the journal is available from Pleiades Publishing, Ltd.
Distributed worldwide by Springer. *Biochemistry* (Moscow) ISSN 0006-2979.

Engl./Russ.

MODERN PHOTOBIOLOGY IN RUSSIA

Guest Editors **A. Yu. Semenov, E. A. Kotova, M. D. Mamedov, A. A. Tsygankov**

Different Effects of Identical Symmetry-Related Mutations near the Bacteriochlorophyll Dimer
in the Photosynthetic Reaction Center of *Rhodobacter sphaeroides*

L. G. Vasilieva, T. Y. Fufina, A. G. Gabdulkhakov, and V. A. Shuvalov 647 767

Reviews

Electron Transfer in Photosystem I Containing Native and Modified Quinone Acceptors

A. Yu. Semenov, A. A. Petrova, M. D. Mamedov, and V. A. Nadochenko 654 775

The Green Alga *Chlamydomonas reinhardtii* as a Tool for *in vivo* Study of Site-Directed Mutations
in PsbO Protein of Photosystem II

A. V. Pigolev and V. V. Klimov 662 785

Carbonic Anhydrases in Photosynthetic Cells of Higher Plants

N. N. Rudenko, L. K. Ignatova, T. P. Fedorchuk, and B. N. Ivanov 674 798

ESR – A Retinal Protein with Unusual Properties from *Exiguobacterium sibiricum*

*L. E. Petrovskaya, S. P. Balashov, E. P. Lukashev, E. S. Imasheva, I. Yu. Gushchin,
A. K. Dioumaev, A. B. Rubin, D. A. Dolgikh, V. I. Gordeliy, J. K. Lanyi, and M. P. Kirpichnikov* 688 814

Bioluminescence Assay for Cell Viability

G. Yu. Lomakina, Yu. A. Modestova, and N. N. Ugarova 701 829

Coelenterazine-Dependent Luciferases

S. V. Markova and E. S. Vysotski 714 845

Photobiosensors Containing Luminescent Bacteria

A. D. Ismailov and L. E. Aleskerova 733 867

Photodynamic Inactivation of Gramicidin Channels in Bilayer Lipid Membranes: Protective Efficacy of Singlet Oxygen Quenchers Depends on Photosensitizer Location <i>T. I. Rokitskaya, A. M. Firsov, E. A. Kotova, and Y. N. Antonenko</i>	745 882
Development of Bacteriochlorophyll <i>a</i> -Based Near-Infrared Photosensitizers Conjugated to Gold Nanoparticles for Photodynamic Therapy of Cancer <i>I. V. Pantiushenko, P. G. Rudakovskaya, A. V. Starovoytova, A. A. Mikhaylovskaya, M. A. Abakumov, M. A. Kaplan, A. A. Tsygankov, A. G. Majouga, M. A. Grin, and A. F. Mironov</i>	752 891
<hr/> Mini-Review <hr/>	
On the Mechanism of Erythrocyte Hemolysis Induced by Photooxidized Psoralen <i>E. V. Nevezhin, N. V. Vlasova, I. A. Pyatnitskiy, E. P. Lysenko, and M. V. Malakhov</i>	763 903
Effect of Laser Optoperforation of the Zona Pellucida on Mouse Embryo Development <i>in vitro</i> <i>E. O. Zakharchenko, A. D. Zalessky, A. A. Osychenko, A. S. Krivokharchenko, A. K. Shakhbazyan, A. V. Ryabova, and V. A. Nadochenko</i>	769 911
Participation of Intracellular and Extracellular pH Changes in Photosynthetic Response Development Induced by Variation Potential in Pumpkin Seedlings <i>O. N. Sherstneva, V. A. Vodeneev, L. A. Katicheva, L. M. Surova, and V. S. Sukhov</i>	776 920
Photoinduced Changes in Subcellular Structures of the Retinal Pigment Epithelium from the Japanese Quail <i>Coturnix japonica</i> <i>P. P. Zak, N. B. Serezhnikova, L. S. Pogodina, N. N. Trofimova, T. S. Gur'eva, and O. A. Dadasheva</i>	785 931
Expression of Neuronal and Signaling Proteins in Penumbra around a Photothrombotic Infarction Core in Rat Cerebral Cortex <i>S. V. Demyanenko, S. N. Panchenko, and A. B. Uzdensky</i>	790 937
