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<http://scholar.google.de/citations?user=2XB-VvgAAAAJ&hl=ru&oi=ao>

EDUCATION

- | | | |
|------|---------------------------------------|---|
| 1974 | M.Sc. (Chemistry) | Department of Chemistry
Lomonosov Moscow State University, Moscow, Russia |
| 1979 | Ph.D. (chemical kinetics & catalysis) | Department of Chemistry, Lomonosov Moscow State University, Moscow, Russia
Research adviser: Prof.I.V.Berezin. Thesis: Fluorescence study of the structure-function relationships in peroxidase catalysis. |
| 1990 | D.Sc. (Biochemistry) | Department of Chemistry, Lomonosov Moscow State University, Moscow, Russia
Thesis: Novel photoluminescent immunoassay methods for in vitro diagnosis. |

RESEARCH AND PROFESSIONAL EXPERIENCE:

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| 1974-79 | Doctoral Research Fellow, Department of Chemistry, Lomonosov Moscow State University, Moscow, Russia. Laboratory of Prof. Nataly N. Ugarova. |
| 1979-81 | Junior Research Scientist, Department of Chemistry, Lomonosov Moscow State University, Moscow, Russia. Laboratory of Prof. Nataly N. Ugarova. |

- 1981-87 Senior Research Scientist, A.N.Bach Institute of Biochemistry, Russian Academy of Sciences, Moscow, Russia. Laboratory of Prof. Ilja V. Berezin.
- 1987-91 Principal Investigator, Head of the research group, A.N.Bach Institute of Biochemistry, Russian Academy of Sciences, Moscow, Russia.
- 1991- present Head of laboratory, laboratory of physical biochemistry, A.N.Bach Institute of Biochemistry, Russian Academy of Sciences, Moscow, Russia.
- 1998 – present Professor of Biochemistry (second position), Department of Chemistry, Lomonosov Moscow State University, Moscow, Russia.
- 1994 (I-VI) Research Visitor, BioCity, University of Turku, Finland. Laboratory of Prof. Erkki Soini.
- 1995 (V-VII) Research Visitor, Institute of Laser Medicine, Heinrich-Heine University, Duesseldorf, Germany. Laboratory of Prof. Joerg Moser.
- 1997 (IV-VI) Research Visitor, Institute of Laser Medicine, Heinrich-Heine University, Duesseldorf, Germany. Laboratory of Prof. Joerg Moser.
- 2008- present Vice Director of the A.N.Bach Institute of Biochemistry, Russian Academy of Sciences, Moscow, Russia.

PROFESSIONAL SOCIETIES:

Russian Biochemical Society
 American Chemical Society
 International Society for Neonatal Screening

HONORS:

2010 Award of the Russian Government in Biotechnology for development of new diagnostic kits for neonatal screening

MAJOR RESEARCH INTERESTS:

MAIN FIELD:

Molecular imaging, fluorescent microscopy, fluorescent spectroscopy of biological molecules, GFP-like color fluorescent proteins.

OTHER FIELDS:

Analytical biochemistry, neonatal screening and prenatal diagnostics, protein engineering, immunochemistry, photodynamic therapy (PDT), enzymology, bioconjugate chemistry, biosensors, cell biology.

SUMMARY OF RESEARCH INTERESTS

At the department of chemical enzymology of the Moscow State University I specialized in the study of structure and function of horseradish peroxidase. We demonstrated that the conformational dynamics and permeability of the active site of peroxidase for low molecular substrates is very essential for efficient catalysis (1980).

In the field of immunoassay research principle attention was devoted to the development of the labels with wavelength-resolution (WR-FIA, porphyrins (1987) and phthalocyanines (1992)) and time-

resolution (TR-FIA, novel europium chelates (1987) and phosphorescent metalloporphyrins (1989)) for the minimization of the background signal of the biological samples, in order to reach high sensitivity in the detection of biological substances. The monoclonal antibodies against Pd-coproporphyrin for noncovalent labeling of antibodies (UniFIA) were obtained. The methods for depositing Langmuir-Blodgett films of antibodies onto solid-surface supports were developed, and the immunological properties of these films are also under study.

In 1987 the project dealing with photodynamic therapy was started. The use of conjugates of monoclonal antibodies with photodynamic agents makes it possible to change fundamentally the strategy of selecting a photodynamic agent and to use this method for selective photodestruction of viruses (1989). The main purpose of this project is to study the structure and photodynamic properties of dyes conjugated with antibodies, biotin, avidin and to reveal a target of photodynamic action in the case of photoimmunotoxin at cell level.

In 1998 new project on novel fluorescent proteins homologous to green fluorescent protein (GFP) was initiated. Cloning and comparative analysis of GFP homologues from other species could greatly further many fields in biotechnology and medicine. GFP-like fluorescent proteins have been found in nonbioluminescent reef-dwelling coral species, in spite of the general opinion that GFP-like proteins are always functionally linked to bioluminescence. Four of the new proteins emit green light, one yellow, and one red. Despite low degrees of homology, it can be inferred that all the proteins share the same beta-can fold first observed in GFP. Main attention is paid to the study of the structure of chromophores and mechanism of its formation, to the conformational dynamics and permeability of the proteins for low molecular substances.

In 2005 project on *in vivo* enzymology based on fluorescent life-time imaging microscopy (FLIM) and fluorescent resonance energy transfer (FRET) was started. Genetically encoded FRET pairs of red fluorescent proteins were developed as substrates for caspases. The applicability of this approach for small animal whole body imaging was demonstrated. My laboratory of physical biochemistry (A.N. Bach Institute of biochemistry RAS) have a great experience in work with fluorescent proteins (FP's) starting from genetic manipulations with gene of FP, isolation and purification of target proteins, on out to investigation of their properties and development of sensors based on them, and then study the applicability of these sensors in living cells and small laboratory animals. Work on the study of conformational equilibria in fluorescent proteins (including the protein KFP) has carried out here a long time.

In 2010 project on nanobiosafety was started. Main goal of the project is to study the biodistribution of nanoparticles in whole organism depending on size, charge and surface chemistry.

RECENT SCIENTIFIC ACTIVITIES

Conference Chair, Program Committee: Conference on Advanced Fluorescence Imaging Methods ADFLIM Dagomys - Sochi, Russia, October 3-6, 2016 (www.adflim.org)

Conference Chair, Program Committee: 1-st School on ADFLIM Moscow, December 12-14, 2016

Conference Chair, Program Committee: 2-st School on ADFLIM St-Petersburg, July 26-28, 2017

Program Committee: V International Symposium Topical Problems of Biophotonics, Nigny Novgorod-Elabuga- Nigny Novgorod, Russia, 20-24 July, 2015

Program Committee: IV International Symposium Topical Problems of Biophotonics, Nigny Novgorod-Yaroslavl-Kazan- Nigny Novgorod, Russia, 21-27 July, 2013

IV Russian Biophysical Congress, Nigny Novgorod, Russia, 20-26 August, 2012

Program Committee: III International Symposium Topical Problems of Biophotonics, St.-Peterburg – Nigny Novgorod, Russia, 16-22 July, 2011

Program Committee: VI Congress of Russian Photo biological Society, Schepsi, Russia, September 15-22, 2011

Program Committee: 12th International Conference on Laser Applications in Life Sciences (LALS-2010) Oulu, Finland, June 9-11, 2010

Program Committee: II International Symposium "Topical Problems of Biophotonics – 2009", Nizhniy Novgorod, 19-24 July (2009)

Conference Chair, Program Committee: “Small Animal Whole-Body Optical Imaging Based on Genetically Engineered Probes”, part of SPIE's Photonics West BiOS 2008, January 19-24, 2008, San Jose Convention Center, San Jose, California

Conference Chair, Program Committee: “Small Animal Whole-Body Optical Imaging Based on Genetically Engineered Probes”, part of SPIE's Photonics West BiOS 2007, January 20-25, 2007, San Jose Convention Center, San Jose, California

Conference Chair, Program Committee: “Genetically Engineered Probes”, part of SPIE's Photonics West BiOS 2006, January 21-26, 2006, San Jose Convention Center, San Jose, California

Conference Chair, Program Committee: “Genetically Engineered and Optical Probes for Biomedical Applications”, part of SPIE's Photonics West BiOS 2005, January 22-27, 2005, San Jose Convention Center, San Jose, California

Conference Chair, Program Committee: “Genetically Engineered Fluorescent and Bioluminescent Probes”, part of SPIE's Photonics West BiOS 2004, January 24-29, 2004, San Jose Convention Center, San Jose, California

Conference Chair, Program Committee and Session Chair: “Genetically Engineered Probes”, part of SPIE's Photonics West BiOS 2003, January 27-28, 2003, San Jose Convention Center, San Jose, California

Program Committee and Session Chair: “Advanced Techniques in Analytical Cytology VI”, part of SPIE's Photonics West BiOS 2002, January 19-25, 2002, San Jose Convention Center, San Jose, California

Program Committee and Session Chair: “Advanced Techniques in Analytical Cytology V”, part of SPIE's Photonics West BiOS 2001, January 20-26, 2001, San Jose Convention Center, San Jose, California

Program Committee: “Advanced Techniques in Analytical Cytology IV”, part of SPIE's Photonics West BiOS 2000, January 22-28, 2000, San Jose Convention Center, San Jose, California
Session Chair: "Dyes and Detection", part of Advanced Techniques in Analytical Cytology IV. BiOS 2000, January 22-28, 2000, San Jose Convention Center, San Jose, California

THESIS COMMITTEE MEMBER:

Thesis committee at the Chair of the Chemical Enzymology, Department of Chemistry, Lomonosov Moscow State University, Moscow.

Thesis committee at the A.N.Bach Institute of Biochemistry of the Russian Academy of Science, Moscow

TEACHING:

Chair of the Chemical Enzymology, Department of Chemistry, Lomonosov Moscow State University, annual training course for students and postgraduate students: Methods of fluorescent spectroscopy in biochemistry, biology and medicine. Moscow, Vorobiyovi Gori, Department of Chemistry, Lomonosov Moscow State University.

SPIE's Education Program, short course on:

SC695 Optical in vivo Biosensing based on color fluorescent proteins

Photonics West 2007, - January 24, 2007 at San Jose Convention Center in San Jose, California

SC695 Noninvasive Fluorescent in vivo biosensing for Drug Design and Screening

Photonics West 2005, - January 24, 2005 at San Jose Convention Center in San Jose, California.

Basic Principles of Microsecond Time-Resolved Photoluminescence Labeling Technology' :

Photonics West 2003, - January 28, 2003 at San Jose Convention Center in San Jose, California.

Photonics West 2002, - January 21, 2002 at San Jose Convention Center in San Jose, California.

Photonics West 2001, - January 24, 2001 at San Jose Convention Center in San Jose, California.

Photonics West 2000, - January 24, 2000 at San Jose Convention Center in San Jose, California.

SPIE's Photonics West '99 Education Program, short course on *Target Dyes: Basic Principles of Microsecond Time-Resolved Photoluminescence Labeling Technology'*, - January 26, 1999 at San Jose Convention Center in San Jose, California.

GRADUATE STUDENTS:

Gabibov Alexander, MS, chemical kinetics & catalysis (1977)

Ploticina Evgenia, MS, chemical kinetics & catalysis (1979)

Sivogezlov Victor, MS, chemical kinetics & catalysis (1981)

Papkovsky Dmitry, MS, chemical kinetics & catalysis (1985)

PhD STUDENTS:

Krylova Svetlana, Ph.D., biotechnology (1991)

Ponomareva Irina, Ph.D., biotechnology (1991)

Lopatin Konstantin, Ph.D., biochemistry (1992)

Mantrova Ekaterina, Ph.D., biotechnology (1993)

Dubrovsky Timofei, Ph.D., biotechnology (1994)

Nelen Marina, Ph.D., chemical kinetics & catalysis (1994)

Meerovich Irina, Ph.D., biochemistry (2002)

Pometun Evgeny, Ph.D. biochemistry (2004)

Zubova Nadya, PhD, biochemistry (2006)

Jerdeva Viktoria, PhD biochemistry (2007)

Liysan Arslanbaeva, PhD biochemistry (2011)
 Alexander Rusanov, PhD biochemistry (2011)
 Alexander Goryashenko, Ph.D. biochemistry (2013).
 Yana Loginova, Ph.D. biochemistry (2013)

DEPARTMENTAL:

Member of the Scientific and Administrative Council of the Institute of Biochemistry of the Russian Academy of Science, Moscow

List of selected publication (available in English)

1. Solovyev, I.D., Gavshina, A.V., Katti, A.S., Chizhik, A.I., Vinokurov, L.M., Lapshin, G.D., Ivashina, T.V., Khrenova, M.G., Kireev, I.I., Gregor, I., Enderlein, J., and Savitsky, A.P. Monomerization of the photoconvertible fluorescent protein SAASoti by rational mutagenesis of single amino acids, *Scientific reports*, 8 (1), 15542 (2018).
2. Mamontova, A.V., Solovyev, I.D., Savitsky, A.P., Shakhov, A.M., Lukyanov, K.A., and Bogdanov, A.M. Bright GFP with subnanosecond fluorescence lifetime, *Scientific reports*, 8 (2018), 13224
3. Solovyev, I.D., Gavshina, A.V., and Savitsky, A.P. Reversible photobleaching of photoconvertible SAASoti-FP, *Journal of Biomedical Photonics & Engineering* 3 (4), 040303 (2018).
4. Victoria V. Zherdeva; Natalia I. Kazachkina; Vladislav I. Shcheslavskiy; Alexander P. Savitsky. Long-term fluorescence lifetime imaging of a genetically encoded sensor for caspase-3 activity in mouse tumor xenografts. *J. of Biomedical Optics*, 23(3), 035002 (2018).
<https://doi.org/10.1117/1.JBO.23.3.035002>
5. Alexander S Goryashchenko, Maria G Khrenova, Alexander P Savitsky. Detection of protease activity by fluorescent protein FRET sensors: from computer simulation to live cells. *Methods Appl. Fluoresc.* 6 (2018) 022001, <https://doi.org/10.1088/2050-6120/aa9e47>
6. Khrenova MG, Solovyev ID, Lapshin GD, Savitsky AP. Molecular mechanism of interactions between MMP-2 and its oligopeptide-based inhibitors. *Mendeleev Communications*. Vol.27, 157-159 (2017)
7. Khrenova MG, Solovyev ID, Azev VN, Lapshin GD, Savitsky AP. Oxoethylene derivative of the natural substrate as an inhibitor of matrix metalloproteinase MMP-2. *Mendeleev Communications*. Vol.26, 207-208 (2016)
8. Goryashchenko AS, Khrenova MG, Bochkova AA, Ivashina TV, Vinokurov LM, Savitsky AP. Genetically Encoded FRET-Sensor Based on Terbium Chelate and Red Fluorescent Protein for Detection of Caspase-3 Activity. *International journal of molecular sciences* 16 (7), 16642-16654 (2015)
9. Sarkisyan KS, Goryashchenko AS, Lidsky PV, Gorbachev DA, Bozhanova N.G, Gorokhovatsky A.Yu, Pereverzeva A.R, Ryumina A.P, Zherdeva V.V, Savitsky A.P, Solntsev K.M, Bommarius A.S, Sharonov G.V, Lindquist J.R, Drobizhev M., Hughes T.E, Rebane A., Lukyanov K.A, Mishin A.S. Green fluorescent protein with anionic tryptophan-based chromophore and long fluorescence lifetime. *Biophysical journal* 109 (2), 380-389 (2015)
10. Meerovich IG, Kazachkina NI, Savitsky AP. Investigation of the effect of photosensitizer Tiosense on the tumor model mel Kor-TurboRFP expressed red fluorescent protein
Russian Journal of General Chemistry 85 (1), 274-279 (2015)
11. Lapshin G, Salih A, Kolosov P, Golovkina M, Zavorotnyi Y, Ivashina T, Vinokurov L., Bagratashvili V., Savitsky A. Fluorescence color diversity of great barrier reef corals

- Journal of Innovative Optical Health Sciences*, 1550028 (2015)
12. Khrenova MG, Savitsky AP, Topol IA, Nemukhin AV. Exploration of the Zinc Finger Motif in Controlling Activity of Matrix Metalloproteinases. *The Journal of Physical Chemistry B* 118 (47), 13505-13512 (2014)
 13. MG Khrenova, AV Nemukhin, AP Savitsky. Computational characterization of Ketone-Ketal transformations at the active site of matrix metalloproteinase. *The Journal of Physical Chemistry B*, 2014, V.118 (16), P.4345-4350
 14. A Nemukhin, B Grigorenko, A Savitsky. Quantum based simulation s of structure and spectra of photoreceptor proteins. *FEBS JOURNAL*, 2013, V.280, P.592-592
 15. Grigorenko B.L., Polyakov I.V., Savitsky A.P., Nemukhin A.V. Unusual Emitting States of the Kindling Fluorescent Protein: Appearance of the Cationic Chromophore in the GFP Family *Journal Of Physical Chemistry B*, 2013, V.117, P.7228-7234
 16. Mironov V.A., Khrenova M.G., Grigorenko B.L., Savitsky A.P., Nemukhin A.V. Thermal Isomerization of the Chromoprotein asFP595 and Its Kindling Mutant A143G: QM/MM Molecular Dynamics Simulations. *The Journal of Physical Chemistry B*, 2013, V.117, P.13507-13514
 17. Zherdeva V.V., Savitsky A.P. Using Lanthanide-Based Resonance Energy Transfer for *in vitro* and *in vivo* Studies of Biological Processes. *Biochemistry (Moscow)*, 2012, Vol. 77, No. 13, pp. 1553-1574
 18. Loginova Y.F., Kazachkina N.I., Zherdeva V.V., Rusanov A.L., Shirmanova M.V., Zagaynova E.V., Sergeeva E.A., Dezhurov S.V., Wakstein M.S., Savitsky A.P. Biodistribution of intact fluorescent CdSe/CdS/ZnS quantum dots coated by mercaptopropionic acid after intravenous injection into mice. *J. Biophotonics*, 2012, vol. 11-12, p. 848-859.
 19. Loginova Y.F., Dezhurov S.V., Zherdeva V.V., Kazachkina N.I., Wakstein M.S., Savitsky A.P. Biodistribution and stability of CdSe core quantum dots in mouse digestive tract following per os administration: Advantages of double polymer/silica coated nanocrystals. *Biochem. Biophys. Res. Comm.*, 2012, vol. 419 (1), p. 54–59
 20. A.P. Savitsky , I.G. Meerovich , V.V. Zherdeva ,L.R. Arslanbaeva , O.S. Burova , D.V. Sokolova, E.M. Treshchalina , A.Yu Baryshnikov , I.I. Fiks , A.G. Orlova , M.S. Kleshnin , I.V. Turchin , A.M. Sergeev. Chapter 7. Three-Dimensional In Vivo Imaging of Tumors Expressing Red Fluorescent Proteins. In: Robert M. Hoffman (ed.), In: *In Vivo Cellular Imaging Using Fluorescent Proteins: Methods and Protocols*, *Methods in Molecular Biology*, 2012, vol. 872, pp. 97-114
 21. I. Topol, J. Collins, V. Mironov, A. Savitsky, A. Nemukhin, Modeling absorption of the kindling fluorescent protein with the neutral form of the chromophore. *International Journal of Quantum Chemistry*, 2012, 112, 2947-2951.
 22. Alexander P. Savitsky, Alexander L. Rusanov, Victoria V. Zherdeva, Tatiana V. Gorodnicheva, Maria G. Khrenova and Alexander V. Nemukhin. FLIM-FRET Imaging of Caspase-3 Activity in Live Cells Using Pair of Red Fluorescent Proteins. *Theranostics*, 2012; Vol.2(2), pp.215-226.
 23. Alexander L. Rusanov, Vladimir A. Mironov, Alexander Goryashenko, Bella L. Grigorenko, Alexander V. Nemukhin, and Alexander P. Savitsky. Conformational partitioning in pH-induced fluorescence of the kindling fluorescent protein (KFP). *The Journal of Physical Chemistry B*, Vol. 115, pp 9195–9201, 2011
 24. I. Topol, J. Collins, A. Savitsky, A. Nemukhin. Computational strategy for tuning spectral properties of red fluorescent proteins. *Biophysical Chemistry* 158 (2011) 91–95
 25. I. Shelaev, V. Mironov, A. Rusanov, F. Gostev, A. Bochenkova, O. Sarkisov, A. Nemukhin, A. Savitsky. The origin of radiationless conversion of the excited state in the kindling fluorescent protein (KFP): femtosecond studies and quantum modeling. *Laser Physics Letters*, 2011, Vol.8, No. 6, 469–474

26. Rusanov A.L., Savitsky A.P. Fluorescence resonance energy transfer between fluorescent proteins as powerful toolkits for in vivo studies, *Laser Physics Letters*, 2011, v. 8(2), p. 91-102
27. Rusanov A.L., Ivashina T.V., Vinokurov L.M., Fiks I.I., Orlova A.G., Turchin I.V., Meerovich I.G., Zherdeva V.V., Savitsky A.P. Lifetime imaging of FRET between red fluorescent proteins, *J. Biophotonics*, 2010, v. 3(12), p. 774-783
28. L. R. Arslanbaeva, V. V. Zherdeva, T. V. Ivashina, L. M. Vinokurov, A. L. Rusanov, and A. P. Savitsky Genetically Encoded FRET pair on the Basis of Terbium binding Peptide and Red Fluorescent Protein. *Applied Biochemistry and Microbiology*, 2010, Vol. 46, No. 2, pp. 154–158
29. A.V. Nemukhin, B.L. Grigorenko, A.P. Savitsky Computer modeling of structure and spectra of fluorescent proteins *Acta Naturae*, 2009, №2, C. 33-43
30. Collins J.R., Topol I.A., Nemukhin A.V., Savitsky A.P. “Computational modeling structure and spectra of biological chromophores” *Proceedings of SPIE*, 2009, P.71912
31. Ilya V. Turchin, Vladislav A. Kamensky, Vladimir I. Plehanov, Anna G. Orlova, Mikhail S. Kleshnin, Ilya I. Fiks, Marina V. Shirmanova, Irina G. Meerovich, Lyaisan R. Arslanbaeva, Viktoria V. Jerdeva, Alexander P. Savitsky. Fluorescence diffuse tomography for detection of red fluorescent protein expressed tumors in small animals. *Journal of Biomedical Optics* Vol.13, N4, 2008
32. A.V. Nemukhin, I.A. Topol, B.L. Grigorenko, A.P. Savitsky, J.R. Collins, “Conformation dependence of pKa's of the chromophores from the purple asFP595 and yellow zFP538 fluorescent proteins”, *J.Mol.Struct. (THEOCHEM)*, 2008, V.863, pp.39-43.
33. K.B. Bravaya, A.V. Bochenkova, A.A. Granovsky, A.P. Savitsky, A.V. Nemukhin, “Modeling photoabsorption of the asFP595 chromophore”, *J.Phys.Chem.A.*, 2008, V.112, pp.8804-8810
34. Alexander V. Nemukhin; Bella L. Grigorenko; Anastasia V. Bochenkova; Ksenia B. Bravaya; Alexander P. Savitsky, “Computational approaches in modeling spectra of biological chromophores”, *Proceedings of SPIE*, 2008, Vol. 6868; DOI: 10.1117/12. 760952.
35. Bella L. Grigorenko; Alexander V. Nemukhin; Alexander P. Savitsky, “Simulations on the kindling mechanism of the asFP595 fluorescent protein”, *Proceedings of SPIE*, 2008, Vol. 6868; DOI: 10.1117/12.760963
36. Alexander L. Rusanov, Nadya Zubova, Alexander P. Savitsky. Role of pH in the appearance of the fluorescent state of chromo protein asCP595 and its mutant KFP. *Proc.SPIE*, Vol.6449, (SPIE, Bellingham, WA, 2007), pp.644917-1-7
37. Vadim A. Korolenko, Evgeny Evtushenko, Alexander L. Rusanov, Nadya Zubova, Ilya N. Kurochkin, and Alexander P. Savitsky Multipopulation desaggregation behavior of zFP538 upon dilution. *Proc. SPIE* 6098, 60980N (2006)
38. B. Grigorenko, A. Savitsky, I. Topol, S. Burt, A.Nemukhin. Ground-State Structures and Vertical Excitations for the Kindling Fluorescent Protein asFP595. *J. Phys. Chem. B*, Vol.110, P.18635-18640 (2006)
39. B. Grigorenko, A. Savitsky, I. Topol, S. Burt, A. Nemukhin. Trans and cis Chromophore structures in the kindling fluorescent protein asFP595. *Chemical Physics Letters*, Vol. 424, P. 184-188, (2006)
40. I. V. Turchin, V. I. Plehanov, A. G. Orlova, V. A. Kamenskiy, M. S. Kleshnin, M. V. Shirmanova, N. M. Shakhova, I. V. Balalaeva, A. P. Savitskiy. Fluorescence Diffuse Tomography of Small Animals with DsRed2 Fluorescent Protein. *Laser Physics*, 2006, Vol. 16, No. 5, pp. 741–746.
41. Tanja A. Schüttigkeit, Till von Feilitzsch, Christian K. Kompa, Konstantin A. Lukyanov, Alexander P. Savitsky, Alexander A. Voityuk and Maria E. Michel-Beyerle. Femtosecond study of light-induced fluorescence increase of the dark chromoprotein asFP595. *Chemical Physics*. Vol. 323, P. 149-160 (2006)

42. Savitsky A.P. Subpicomolar assays of antibodies and DNA using phosphorescence labels. In *Fluorescent sensors and Biosensors*. Edited by Richard B. Thompson, ISBN 0-8247-2737-1, **CRC Press** (a subsidiary of Taylor and Francis), Boca Raton, FL, September 2005, c.400 pp.
43. Zubova N.N., Korolenko V.A., Astafyev A.A., Petrukhin A.N., Vinokurov L.M., Sarkisov O.M., Savitsky A.P. Brightness of yellow fluorescent protein from coral (zFP538) depends on aggregation. *Biochemistry*. Vol. 44, pp. 3982-93 (2005)
44. Meerovich I.G., Jerdeva V.V., Derkacheva V.M., Meerovich G.A., Lykhanets E.A., Kogan E.A., Savitsky A.P. Photodynamic activity of dibiotinilated aluminum sulfophthalocyanine in vitro and in vivo. *J. Photochem. Photobiol. B: Biology*. Vol. 80, pp. 57-64 (2005)
45. Ilya V. Turchin, Vladimir I. Plehanov, Ekaterina A. Sergeeva, Anna G. Orlova, Vladimir A. Vorob'ev, Vladislav A. Kamensky, and Alexander P. Savitsky. Frequency-domain optical diffusion tomography of fluorescent proteins. In *Proc. SPIE*, Vol.5859, Photon Migration and Diffuse-Light Imaging II, Kai Licha, Rinaldo Cubeddu, Editors, 58591H (2005).
46. Irina G. Meerovich, Meng Yang, Ping Jiang, Robert M. Hoffman, Valery P. Gerasimenya, Alexander E. Orlov, Alexander P. Savitsky, and Vladimir O. Popov. Study of action of cyclophosphamide and extract of mycelium of *Pleurotus ostreatus* in vivo on mice, bearing melanoma B16-F0-GFP. In *Proc SPIE*, Vol.5704, Genetically Engineered and Optical Probes for Biomedical Applications III, Darryl J. Bornhop, Samuel I. Achilefu, Ramesh Raghavachari, Alexander P. Savitsky, Editors, April 2005, pp. 214-221.
47. Nadya N. Zubova, Vadim A. Korolenko, and Alexander P. Savitsky. Kinetics of denaturation of the yellow fluorescent protein from coral zFP538. In *Proc SPIE*, Vol.5704, Genetically Engineered and Optical Probes for Biomedical Applications III, Darryl J. Bornhop, Samuel I. Achilefu, Ramesh Raghavachari, Alexander P. Savitsky, Editors, April 2005, pp.206-213.
48. Nadya N. Zubova, Artem A. Astafyev, Andrew N. Petrukhin, Oleg M. Sarkisov, and Alexander P. Savitsky. Atomic force and near-field scanning microscopy of solid zFP538 films. In *Proc SPIE*, Vol.5704, Genetically Engineered and Optical Probes for Biomedical Applications III, Darryl J. Bornhop, Samuel I. Achilefu, Ramesh Raghavachari, Alexander P. Savitsky, Editors, April 2005, pp.200-205
49. Alexander P. Savitsky, Michail B. Agranat, Konstantin A. Lukyanov, Tanja Schuttrigkeit, Till von Feilitzsch, Christian Kompa, M.E. Michel-Bayerle. Fluorescence enhancement of asCP595 is due to consecutive absorbance of two photons. In *Proc. SPIE*, Volume 5329, pp. 73-78 - Genetically Engineered and Optical Probes for Biomedical Applications II. Alexander P. Savitsky, Lubov Y. Brovko, Darryl J. Bornhop, Ramesh Raghavachari, Samuel I. Achilefu, Editors, June 2004
50. Nadya N. Zubova, Leonid M. Vinokurov, and Alexander P. Savitsky Aggregation of the yellow fluorescent protein zFP538 is pH-dependent. In *Proc. SPIE*, Volume 5329, pp. 187-191 - Genetically Engineered and Optical Probes for Biomedical Applications II. Alexander P. Savitsky, Lubov Y. Brovko, Darryl J. Bornhop, Ramesh Raghavachari, Samuel I. Achilefu, Editors, June 2004
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