

CURRICULUM VITAE

Name: Fedor Fedorovich Severin
Title: Group leader
Birthday: July 3, 1965;
Birthplace: Moscow, USSR
Nationality: Russian

Address:

119992, GSP-2, Moscow, Leninskie Gory,
Moscow State University
A. N. Belozersky Institute of Physico-Chemical Biology
phone: +7-495-9395360
fax: +7-495-939-3181
e-mail: severin@belozersky.msu.ru

Degrees conferred:

1987 Moscow State University, Moscow,
BSc, Biochemistry.

1992 Moscow State University, Moscow
Ph.D. Biochemistry.

University education:

1982-1987 Moscow State University, Moscow.
Biochemistry.

Fellowships:

7.93-12.93 EMBO Fellowship for East Europe

Research Experience:

1.86-1.87 Research Assistant: Institute of Protein Research
RAS. (laboratory of Prof. A.S. Spirin)
Study on phosphorylation of elongation factor 2
1.87-12.88 Professional training, Institute of Protein Research
RAS. (laboratory of Dr. V.I Gelfand)
The establishment of in vitro assay for kinasin-
induced microtubule movement.
1.89-12.92 Graduate student: Institute of Protein Research
RAS. (laboratory of Dr. V.I Gelfand)
Study on interaction of microtubules with vesicles
and with each other.
1.93-3.93 Research associate. (laboratory of Dr V.I Gelfand)
Study on interaction of microtubules with each
other.

- 4.93-5.99 Postdoctoral research. European Molecular Biology Laboratory, (lab. of Dr. Anthony A. Hyman). Study on *S.cerevisiae* kinetochore and mitotic spindle
- 6.99-1.2002 Postdoctoral research. Max Planck Institute of Molecular Cell Biology and Genetics. (lab. of Dr. Anthony A. Hyman). Study on *S.cerevisiae* kinetochore and mitotic spindle
- 1.02-12.2003 Postdoctoral research. Max Planck Institute of Molecular Cell Biology and Genetics, Dresden (lab. of Dr. Marino Zerial). Study on microtubule-based endosome motility
- 1.04 – 3.2006 Staff scientist. Biotech Zentrum, TU Dresden. Lab. of Dr. Daniel Mueller
- 4.2006 Group leader. A. N. Belozersky Institute of Physico-Chemical Biology, Moscow State University, Moscow 119992

No military service, no non-scientific activities.

List of Publications

46. Knorre DA, Kulemzina IA, Sorokin MI, Kochmak SA, Bocharova NA, Sokolov SS, **Severin FF**. Sir2-dependent daughter-to-mother transport of the damaged proteins in yeast is required to prevent high stress sensitivity of the daughters. *Cell Cycle*. 2010 Nov 19;9(22).
45. Knorre DA, Smirnova EA, Markova OV, Sorokin MI, **Severin FF**. Prooxidants prevent yeast cell death induced by genotoxic stress. *Cell Biol Int*. 2010 Oct 14.
44. Prevention of cardiolipin oxidation and fatty acid cycling as two antioxidant mechanisms of cationic derivatives of plastoquinone (SkQs). Skulachev VP, Antonenko YN, Cherepanov DA, Chernyak BV, Izyumov DS, Khailova LS, Klishin SS, Korshunova GA, Lyamzaev KG, Pletjushkina OY, Roginsky VA, Rokitskaya TI, **Severin FF**, Severina II, Simonyan RA, Skulachev MV, Sumbatyan NV, Sukhanova EI, Tashlitsky VN, Trendeleva TA, Vyssokikh MY, Zvyagil'skaya RA. *Biochim Biophys Acta*. 2010 June - July;1797(6-7):878-889.
43. Penetrating cation/fatty acid anion pair as a mitochondria-targeted protonophore. **Severin FF**, Severina II, Antonenko YN, Rokitskaya TI, Cherepanov DA, Mokhova EN, Vyssokikh MY, Pustovidko AV, Markova OV, Yaguzhinsky LS, Korshunova GA, Sumbatyan NV, Skulachev MV, Skulachev VP. *Proc Natl Acad Sci U S A*. 2010 Jan 12;107(2):663-8.
42. Влияние амиодарона на ультраструктуру дрожжей *Saccharomyces cerevisiae*. Ожован С. М., Кнорре Д. А., **Северин Ф. Ф.**, Бакеева Л. Е. 2009. Цитология. 51 (11): 911-916

41. Programmed cell death as a target to interrupt the aging program
Severin F. F., Skulachev V. P.
Успехи геронтологии, 2009, том 22, 37-48
40. Amiodarone inhibits multiple drug resistance in yeast *Saccharomyces cerevisiae*
Knorre DA, Krivonosova TN, Markova OV, **Severin FF**.
Arch Microbiol. 2009 Jun 18.
39. Unexpected link between anaphase promoting complex and the toxicity of expanded polyglutamines expressed in yeast.
Natalia A. Bocharova, Svyatoslav S. Sokolov, Dmitry A. Knorre, Vladimir P. Skulachev and **Fedor F. Severin**. *Cell Cycle*, 2008 Vol. 7(24):3943-6..
38. Bocharova N, Chave-Cox R, Sokolov S, Knorre D, **Severin F**. Protein aggregation and neurodegeneration: clues from a yeast model of Huntington's disease. *Biochemistry (Mosc)*. 2009 Feb;74(2):231-4.
37. Mitochondrial matrix fragmentation as a protection mechanism of yeast *Saccharomyces cerevisiae*.
D. A. Knorre, V. B. Saprunova, S. M. Ojovan, S. S. Sokolov, L. E. Bakeeva, and **F.F. Severin**. *Biochemistry (Mosc)*, 2008, Vol. 73, No. 11, pp. 1561-1568.
36. Natural causes of programmed death of yeast *Saccharomyces cerevisiae*.
Fedor F. Severin, Margarita V. Meer, Ekaterina A. Smirnova, Dmitry A. Knorre and Vladimir P. Skulachev. *Biochim Biophys Acta*. 2008 Jul;1783(7):1350-3
35. Regulation of endosome dynamics by Rab5 and its Huntingtin-HAP40 effector complex in physiological versus pathological conditions.
Arun Pal, **Fedor Severin**, Sebastian Hopfner and Marino Zerial. *Methods in Enzymology*, volume 438, chapter 17, Elsevier, 2008
34. Straight GDP-Tubulin Protofilaments Form in the Presence of Taxol.
Elie-Caille, C., **Severin, F.**, Helenius, J., Howard, J., Muller, DJ., Hyman, A. *Curr Biol*. 2007 Oct 23;17(20):1765-1770.
33. Complex of Sli15-Bir1 (INCENP-Survivin) Connects Centromeres to Microtubules and is the Likely Tension Sensor Controlling Aurora B Activation
Sandall, S., **Severin, F.**, McLeod, I., Yates 3rd, J., Oegema, K., Hyman, A., Desai, A., *Cell*, 2006: 127, 1179-1191,
32. Ysp2 mediates death of yeast induced by amiodarone or intracellular acidification
Sokolov, S., Knorre D., Smirnova, E., Markova, O., Pozniakovsky, A., Skulachev, V., **Severin, F.**
Biophys. Biochem. Acta, 2006 Sep-Oct; 1757(9-10) 1366-70.
31. Expression of an expanded polyglutamine domain in yeast causes death with apoptotic markers.

Sokolov, S., Pozniakovsky A., Bocharova, N., Knorre, D., **Severin, F.**
Biophys. Biochem. Acta, 2006: 1757(5-6) 660-666

30. Huntingtin-HAP40 complex is a Novel Rab5 Effector that controls Early Endosome Motility and is upregulated in Huntington Disease
Pal, A., **Severin, F.**, Lommer, B., Schevchenko, A., Zerial, M.

J Cell Biol, 2006:172 (4) 605-618

29. Modulation of Receptor Recycling and Degradation by the Endosomal Kinesin KIF16B

Hoepfner, S., **Severin, F.**, Cabezas, A., Habermann, B., Runge, A., Gillooly, D., Stenmark, H., Zerial, M.

Cell, 2005: 121 (3) 437-450

28. Natural conditions inducing programmed cell death in yeast *Sacharomyces cerevisiae*

Biochemistry (Mosc). 2005 Feb; 70(2):264-6.

Knorre, D., Smirnova, E., **Severin, F.**

27. Role of mitochondria in the pheromone- and amiodarone-induced programmed death of yeast.

J Cell Biol, 2005 Jan 17;168(2):257-69

Pozniakovsky, A., Knorre, D., Markova, O., Hyman, A., Skulachev, V., **Severin, F.**

26. CLASP1 and CLASP2 bind to EB1 and regulate microtubule plus end dynamics at kinetochores and the cell cortex.

J Cell Biol, 2005 Jan 3;168(1):141-53

Mimori-Kiyosue, Y., Grigoriev, I., Lansbergen, G., Sasaki, H.

Matsui, C., **Severin F.**, Galjart, N., Grosveld, F., Vorobiev, I., Tsukita, S.,

Akhmanova, A.

25. Thirteen is the Lucky Number for Doublecortin.

Developmental Cell, 2004 Jul; 7(1):5-6

Akhmanova, A., **Severin, F.**

24. Observing the growth of individual actin filaments in cell extracts by time-lapse atomic force microscopy

FEBS Letters, 551 (2003): 25-28

Lehto T., Miaczynska M., Zerial M., Müller D., **Severin F.**

23. XMAP215 Is Required for the Microtubule-Nucleating Activity of Centrosomes
Curr Biol. 2002 Aug 6 2002: 12 (15): 1326-1330

Popov, A.V., **Severin, F.**, Karsenti, E.

22. Pheromone Induces Programmed Cell Death in *S. cerevisiae*.

Curr Biol. 2002 Apr 2;12(7):R233-5.

Severin FF., Hyman AA.

21. Correct spindle elongation at the metaphase/anaphase transition is an APC-dependent event in budding yeast.

J Cell Biol. 2001 Nov 26;155(5):711-8.

Severin F., Hyman A., Piatti S.

20. [Translation initiation factor eIF3 is able to bind with microtubules in mammalian cells]

Mol Biol (Mosk). 2001 Jul-Aug;35(4):638-46. Russian.

Shanina NA., Ivanov PA., Chudinova EM., **Severin FF.**, Nadezhdina ES.

19. Stu2 promotes mitotic spindle elongation in anaphase.

J Cell Biol. 2001 Apr 16;153(2):435-42.

Severin F., Habermann B., Huffaker T., Hyman T.

18. In Vitro Reconstitution of Endosome Motility Along Microtubules.

Methods Mol Biol. 2001;164:133-46.

Nielsen E., **Severin F.**, Hyman A., Zerial M.

17. Tumor necrosis factor inhibits kinesin-mediated transport of mitochondria by hyperphosphorylation of kinesin light chain.

J Cell Biol. 2000. Jun 12;149(6):1207-1214

De Vos, K., **Severin FF.**, Van Herreweghe, F., Goosens, V., Hyman, AA., Grooten, J.

16. Rab5 regulates Motility of Early Endosomes on Microtubules.

Nat Cell Biol. 1999, Oct 1(6), 376-382.

Nielsen E., **Severin FF.**, Backer MJ., Hyman AA., Zerial M.

15. Regulation of yeast *Saccharomyces cerevisiae* kinetochores by the type 1 phosphatase Glc7p *Genes and Development*, 1999, Mar 1, 13(5), 545-55

Sassoon, I., **Severin, FF.**, Andrews, P., Taba, H., Kaplan, K., Ashford, A, Stark, M, Sorger, P, Hyman, A.

14. The conserved protein kinase Ipl1 regulates kinetochore binding to microtubules in budding yeast.

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Biggins, S., **Severin, F.**, Bhalla, N., Hyman, AA., Murraw, A.

13. In vitro assays for studying *Saccharomyces cerevisiae* kinetochore activity.

Methods Cell Biol. 1999;61:145-53

Severin, F., Kaplan, K., Sorger, P., Hyman, T.

12. Structural changes at microtubule ends accompanying GTP hydrolysis: information from a slowly hydrolyzable analogue of GTP, guanylyl (alpha,beta)methylenediphosphonate.

Proc Natl Acad Sci U S A 1998 Mar 31;95(7):3661-6

Muller-Reichert, T., Chretien, D., **Severin, F.**, Hyman, AA.

11. A role for microtubule dynamics in phagosome movement.

J Cell Sci 1998 Feb;111 (Pt 3):303-12

Blocker, A., Griffiths, G., Olivo, JC., Hyman, AA., **Severin FF.**

10. A major 170 kDa protein associated with bovine adrenal medulla microtubules: a member of the centrosomin family?

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Severin FF., Shanina, NA., Shevchenko, A., Solovyanova, OB., Koretsky, VV., Nadezhdina, ES.

9. Kinetochores distinguish GTP from GDP forms of the microtubule lattice.

Nature, 1997 Aug 28;388(6645):888-91

Severin FF., Sorger PK., Hyman AA.

8. Molecular requirements for bi-directional movement of phagosomes along microtubules. *J Cell Biol* 1997 Apr 7;137(1):113-29

Blocker, A., **Severin, FF.**, Burkhardt, JK., Bingham, JB., Yu H, Olivo, JC., Schroer, TA., Hyman, AA., Griffiths, G.

7. Identification of new molecular components of microtubules and centrosomes.

Cell Biol Int, 1997 Dec;21(12):885-7

Nadezhdina, ES., Bukharova, TB., Koretsky, VV., Potekhina, ES., **Severin, FF.**, Shanina, NA., Solovyanova, OB., Zinovkina, LA.

6. Microtubule-associated protein-dependent binding of phagosomes to microtubules.

J Biol Chem, 1996 Feb 16;271(7):3803-11

Blocker, A., **Severin, FF.**, Habermann, A., Hyman, AA., Griffiths, G., Burkhardt, JK.

5. Factors required for the binding of reassembled yeast kinetochores to microtubules in vitro.

J Cell Biol 1994 Nov;127(4):995-1008

Sorger, PK., **Severin, FF.**, Hyman, AA.

4. Movement of axoplasmic organelles on actin filaments from skeletal muscle.

Cell Motil Cytoskeleton 1994;28(3):231-42

Kuznetsov, SA, Rivera, DT, **Severin, FF.**, Weiss, DG, Langford, GM.

3. [Microtubule-associated proteins].

Biokhimiia 1991 Jun;56(6):963-76

[Article in Russian]

Severin, FF.

2. MAP2-mediated binding of chromaffin granules to microtubules.

FEBS Lett 1991 Apr 22;282(1):65-8

Severin, FF., Shanina, NA, Kuznetsov, SA, Gelfand, VI

1. Phosphorylation of the elongation factor 2: the fifth Ca²⁺/calmodulin-dependent system of protein phosphorylation.

Biochimie 1988 May;70(5):619-26

Ryazanov, AG., Natapov, PG, Shestakova, EA., **Severin, FF.**, Spirin, AS.

Patents

1. (WO/2003/080657) YEAST PHEROMONES FOR THE TREATMENT OF INFECTIOUS DISEASES

Inventors: **Severin, Fedor**; Anthony, Hyman.

2. (WO/2009/148348) METHOD FOR CONTROLLING INFECTIONS AND TUMORAL DISEASES BY SUPPRESSING MULTIDRUG RESISTANCE

Inventors:

SKULACHEV, Maxim Vladimirovich; (RU).

SEVERIN, Fedor Fedorovich; (RU).

KNORRE, Dmitry Alexeevich; (RU).

KRIVONOSOVA, Tatiyana Nikolaevna; (RU).