

Curriculum Vitae

Netaly Khazanov, PhD

Personal information:

Date of birth: 1974

Marital Status: Married + 3 children

Military Service: Israel Defence Forces: 1992 - 1994

Address: Petach Tiqva, Mobile: 050-7629441, e-mail: netalyk@gmail.com

Education:

2011 - 2016: Postdoctoral fellowships in Bar-Ilan University, Department of Chemistry, Hanoch Senderowitz Research Group

2008 - 2011: Postdoctoral fellowships in Weizmann Institute of Science, Department of Structural Biology, Koby Levy Research Group

2003 - 2007: Ph.D. Theoretical Biochemistry, Department of Chemistry, Bar-Ilan University. Supervisor: Prof. A. Albeck, Dr. M. Shokhen.

Thesis title: Catalysis and Inhibition Mechanisms in Serine and Cysteine Proteases and their Implication to Drug Design. A Molecular Modeling Approach.

2001 - 2003: M.Sc. Theoretical Biochemistry, Department of Chemistry, Bar-Ilan University. (**with distinction**).

Supervisor: Prof. A. Albeck, Dr. M. Shokhen.

Thesis title: Study of the catalytic mechanism and inhibition of cysteine proteases by molecular modeling.

1999 - 2001: B.Sc. Computer Science, Bar-Ilan University.

1994 - 1997: B.Sc. Chemistry, Bar-Ilan University.

Employment:

2019 – 2020: Lab Manager in Bar-Ilan University, Department of Chemistry, Hanoch Senderowitz Research Group

2016 – 2019: Research Associate in Bar-Ilan University, Department of Chemistry, Hanoch Senderowitz Research Group

2001 – 2007: T.A. in various undergraduate courses and laboratories, Bar-Ilan University

1997 – 2000: Analytical Laboratory, Teva Kfar-Saba.

Professional experience:

Computational Chemistry: Jaguar, Gaussian, Insight, Mopac, GROMACS, NAMD. Schrodinger suit of programs, Discovery Studio, Ligand:Scout.

Program languages: C-shell, perl, C

Operation systems: Unix, Linux, Windows.

Tools: Office

Personal Skills:

- Excellent interpersonal communication abilities
- Ability to integrate into teamwork
- Ability to work on several projects simultaneously
- Ability to work independently and under load conditions

- Ability to solve problems and draw conclusions
- Willingness to work during flexible hours, and participation in seminars on software and in scientific conferences

Languages

- Hebrew and Russian: Native language level
- English: Fluent reading, writing and speaking

Awards and fellowships:

2005 – The Israel Chemical Society Prize for Excellence in PhD studies.

2008-2009 – Council for Higher Education fellowship

Publication

1. Shir, H.; Khazanov, N.; Ben Joseph, S.; Plotkin, B.; Eisenstein, M.; **Senderowitz, H**; Eldar-Finkelman, H. Rational Discovery of First Small Molecule Substrate Competitive Inhibitors for GSK-3, submitted for publication.
2. Joshi, R.; Khazanov, N.; Burdman, S.; Carmi, N.; **Senderowitz, H.**; Yedidia, I. A new role for salicylic acid in interkingdom signaling: evidence for direct binding to bacterial N-acyl-homoserine lactone synthase, submitted for publication.
3. Singh Bahia, M.; Khazanov, N.; Zhou, Q.; Yang, Z.; Wang, C.; Hong, J.; Rab, A.; Sorscher, E.; Brouillette, C.; Hunt, J.; **Senderowitz, H.**, Stability Prediction for Mutations in the Cytosolic Domains of CFTR, *Journal of Chemical Information and Modeling*, **2019**, under revision.
4. Nassir, M.; Pelletier, J.; Arad, U.; Arguin, G.; Khazanov, N.; Gendron, F-P.; Sévigny, J. Senderowitz, H.; Fischer, B. Structure-activity relationship study of NPP1 inhibitors based on uracil-N1-(methoxy)ethyl- β -phosphate scaffold, *European Journal of Medicinal Chemistry*, 2019, <https://doi.org/10.1016/j.ejmech.2019.111754>
5. Getter, T.; Margalit, R.; Zilber, S.; Kahremany, S.; Khazanov, N.; Levy, L.; Blum, E.; Tamir, T. Y.; Major, B. M.; Lahav, R.; **Senderowitz, H.**; Bradfield, P.; Imhof, B.; Alpert, E.; Gruzman, A. Novel inhibitors of leukocyte transendothelial migration. *Bioorganic Chemistry* **2019**, Sep 9;92:103250. doi: 10.1016/j.bioorg.2019.103250.
6. Kakhlon, O.; Ferreira, I.; Solmesky, L.J.; Weil, M.; **Khazanov, N.**; Senderowitz, H.; Lossos, A.; Alvarez, R.; Yetil, D.; Pampou, S.; Escriba, P.; Yue, W.; Akman, H.; Guaiacol as a drug-candidate for treating Adult Polyglucosan Body Disease, **2018**, *JCI Insight*, **2018** 3(17). pii: 99694.
7. Mei-Zahav, M.; Stafler, P.; Senderowitz, H.; Bentur, L.; Livnat, G.; Shtainberg, M.; Orenstein, N.; Bazak, L.; Prais, D.; Levine, H.; Gur, M.; **Khazanov, N.**; Simhaev, L.; Blau, H.; Mussaffi, H. The Q359K/T360K Mutation Causes Cystic Fibrosis in Georgian Jews, *J. Cyst. Fibros.* **2018**, 17, e41-e45.
8. Wang, C.; Aleksandrov, A.A.; Yang, Z.; Forouhar, F.; Proctor, E.; Kota, P.; An, J.; Kaplan, A.; **Khazanov, N.**; Boël, G.; Stockwell, B.R; Senderowitz, H.; Dokholyan, N.V.; Riordan, J.R.; Brouillette, C.G; Hunt, J.F. Thermodynamic correction of F508del-hCFTR by ligand binding to a remote site in the mutated domain, *J. Biol Chem.*, **2018**, Jun 14. pii: jbc.RA117.000819. doi: 10.1074/jbc.RA117.000819.

9. Yang, Z.; Hildebrandt E.; Jiang, F.; Zhou, Q.; An, J.; Xavier, B.M.; Ding, H.; **Khazanov, N.**; Senderowitz, H.; Kappes, J.C.; Brouillette, C.G.; Urbatsch, I.L. Structural stability of purified human CFTR is systematically improved by mutations in nucleotide binding domain 1, *Biochim Biophys Acta*. **2018**, 1860, 1193-1204.
10. Solmesky, L.J.; **Khazanov, N.**; Senderowitz, H.; Wang, P.; Minassian, B.; Ferreira, I.M.; Yue, W.; Lossos, A.; Weill, M.; Kakhlon, O. A novel image-based high throughput screening assay discovers therapeutic candidates for adult polyglucosan body disease, *Biochemical Journal*, **2017**, 474, 3403-3420.
11. Hildebrandt, E.; **Khazanov, N.**; Kappes, J.C.; Dai, Q.; Senderowitz, H.; Urbatsch IL. Specific stabilization of CFTR by phosphatidylserine, *Biochim Biophys Acta*. **2017**, 1859, 289-293.
12. Raj Joshi, J.; **Khazanov, N.**; Senderowitz, H.; Burdman, S.; Lipsky, A.; Yedidia, I. Plant phenolic volatiles inhibit quorum sensing in Pectobacteria and reduce their virulence by potential binding to ExpI and ExpR proteins, *Scientific Reports*, **2016**, 6, 38126.
13. Cui, G.; **Khazanov, N.**; Stauffer, B.B.; Infield, d.T.; Imhoff, B.R., Senderowitz, H.; McCarty, N.A. Potentiators exert distinct effects on human, murine, and Xenopus CFTR, *Am J Physiol Lung Cell Mol Physiol*. **2016**, 311, L192-207.
14. **Khazanov, N.**; Iline-Vul, T.; Noy, E.; Goobes, G.; Senderowitz, H. Design of Cellulose Binding Peptides as Carriers for Catalytic Degradation of Cellulose Inspired by the Cellulose Binding Domain from T. Reesei, *J. Phys. Chem. B*. **2016**, 120, 309-19.
15. M Shokhen; M Hirsch; **N Khazanov**; R Ozeri, N.; Perlman, T.; Traube; S. Vijayakumar; Albeck.A, From Catalytic Mechanism to Rational Design of Reversible Covalent Inhibitors of Serine and Cysteine Hydrolases. *Israel Journal of Chemistry*, **2014**, 54 (8-9), 1137-1151.
16. **Khazanov, N**; Marcovitz, A; Levy, Y. Asymmetric DNA-Search Dynamics by Symmetric Dimeric Proteins., *Biochemistry*, **2013**, 52(32), 5335-5344.
17. **Khazanov, N.**; Levy, Y. Sliding of p53 along DNA can be modulated by its oligomeric state and by cross-talks between its constituent domains. *JMB*, **2011**, 408(2), 335-355.
18. Shokhen, M.; **Khazanov, N.**; Albeck, A. The mechanism of papain inhibition by peptidyl aldehydes. *Proteins*, **2011**, 79(3), 975-985.
19. Shokhen, M.; **Khazanov, N.**; Albeck, A Challenging a paradigm: Theoretical calculations of the protonation state of the Cys25-His159 catalytic diad in free papain. *Proteins*, **2009**, 77(4), 916-926.
20. Shokhen, M.; **Khazanov, N.**; Albeck, A. Screening of the active site from water by the incoming ligand triggers catalysis and inhibition in serine proteases *Proteins*, **2008**, 70(4), 1578-1587.
21. Ozeri, R.; **Khazanov, N.**; Perlman, N.; Shokhen, M.; Albeck, A. Enzyme Isolelective Inhibitors: A Tool for Binding Trend Analysis. *ChemMedChem*, **2006**, 1, 631-638.
22. Shokhen, M.; **Khazanov, N.**; Albeck, A. Enzyme Isolelective Inhibition: Application to Drug Design. *ChemMedChem*, **2006**, 1, 639-643.

Poster Presentation:

1. Tel-Aviv, IL, 2004, The 69th meeting of the Israel chemical society
2. Tel-Aviv, IL, 2005, The 70th meeting of the Israel chemical society
3. Zurich, Switzerland, 2009, VIII European Symposium of the Protein Society.

4. **Khazanov, N.**; Levy, Y. "*Sliding of p53 along DNA can be modulated by its oligomeric state and by cross-talks between its constituent domains*" IX European Symposium of the Protein Society. **2011**, Stockholm, Sweden
5. Noy, E.; Zhenin, M.; **Khazanov, N.** Senderowitz, H. "*Replica exchange MD simulations of nucleotide binding domains of CFTR*", Presented at the NAIS: State-of-the-Art Algorithms for Molecular Dynamics conference, April **2012**, Edinburgh, UK.
6. **Khazanov, N.**; Senderowitz, H. "*Stability prediction of nucleotide binding domain 2 of CFTR using MD simulations*", Presented at the 2012 NACFC meeting, October **2012**, Orlando, USA.
7. **Khazanov, N.**; Senderowitz, H. "*Conformational predictions of NBD2 of CFTR using computational tools*", Presented at the 2013 NACFC meeting, October **2013**, Salt Lake City, USA.
8. **Khazanov, N.**; Noy, E.; Simchaev, L.; Zhenin, M. Senderowitz, H. "*Insight into the structure, dynamics and energetics of the ABC transporter CFTR from atomistic simulations*", Presented at the Gordon Research Conference on Biopolymers Mechanisms of Biomolecular Interactions: From Physical Principles to Biological Insights, June **2014**, Newport, RI, USA.
9. Cui, G.; **Khazanov, N.**; Senderowitz, H.; McCarty, N. A. "*Comparative molecular pharmacology of CFTR: toward the identification of novel potentiators and their binding sites*", Presented at the Cystic Fibrosis Foundation Research Conference: Pushing the Frontiers, June **2015**, Chantilly, Virginia, USA.
10. Guiying, C.; **Khazanov, N.**; Senderowitz, H.; McCarty, N.A. "*Comparative molecular pharmacology of CFTR. Towards the identification of novel potentiators and their binding sites*", Presented at the 2015 NACFC meeting, October **2015**, Phoenix, USA.
11. Cui, G.; **Khazanov, N.**; Stauffer, B. B.; Infield, D. T. Imhoff, B. R.; Senderowitz, H. McCarty, N. A. "*CFTR potentiators exert different effects on Human, Murine, and Xenopus CFTR*", Presented at the 60th annual meeting of the biophysics society, February **2016**, Los Angeles, USA.
12. Guiying, C.; **Khazanov, N.**; Imhoff, B.R.; Senderowitz, H.; McCarty, N.A. "*Novel potentiators of cystic fibrosis transmembrane conductance regulator identified with pharmacophore modeling and experimental screening*", Presented at the 2016 NACFC meeting, October **2016**, Orlando, USA.
13. Yang, Z.; An, J.; Zhou, Q.; **Khazanov, N.**; Hildebrandt, E.; Dai, Q.; Ding, H.; Macon, K.; He, L.; Riordan, J.R.; DeLucas, L.J.; Kappes, J.C.; Urbatsch, I.L.; Senderowitz, H.; Brouillette, C.G. "*Identification of "supper" thermostabilizing NBD1 mutations for introduction into heterologously expressed human CFTR destined for large scale purification and biophysical characterization*", Presented at the 2016 NACFC meeting, October **2016**, Orlando, USA.
14. Hildebrandt, E.; Kappes, J.C.; Yang, Z.; Zhou, Q.; An, J.; Dai, Q.; Ding, H.; **Khazanov, N.**; Senderowitz, H.; Brouillette, C.G.; Urbatsch, I. L. "*Thermal stabilization of CFTR by specific phospholipids and by mutations in the nucleotide binding domains*", Presented at the 2016 NACFC meeting, October **2016**, Orlando, USA.
15. Yang, Z.; Zhou, Q.; An, J.; Rab, A.; Hong J. S.; **Khazanov, N.**; Senderowitz, H.; Sorscher, E.; Brouillette, C. "*CFTR2 mutations in NBD1: correlation between in vitro thermal instability and severity of folding defect*", Presented at the 2017 NACFC meeting, November **2017**, Indianapolis, USA.

16. Kakhlon, O.; Ferreira, I.; Solmesky, L.J.; Weil, M.; **Khazanov, N.**; Senderowitz, H.; Lossos, A.; Alvarez, R.; Yetil, D.; Pampou, S.; Escriba, P.; Yue, W.; Akman, H. "*Guaiacol can be a drug-candidate for treating Adult Polyglucosan Body Disease*" Presented at the American Academy of Neurology 70th Annual Meeting, April 2018, Los Angeles, CA, USA.
17. Senderowitz, H.; Zhenin, M.; Simhaev, L.; **Khazanov, N.** "*The dynamics of WT and mutant CFTR*" Presented at the 2018 NACFC meeting, October **2018**, Denver, USA.
18. Urbatsch, I.L.; Yang, Z.; Hildebrandt, E.; Jiang, F.; Aleksandrov, A.; **Khazanov, N.**; Riordan, J.R.; Senderowitz, H.; Brouillette, C.; Kappes, J.C. "*Functional stabilization of purified human CFTR by NBD1 mutations and by conformations*" Presented at the 2018 NACFC meeting, October **2018**, Denver, USA.

References are available upon request