

CURRICULUM VITAE OF

ELIYAHU DREMENCOV, MMEDSC, PHD

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PERSONAL DATA

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Business Address (1): Neuroken Consulting, Healthy Ageing Campus Netherlands, LJ Zielstraweg 2, 9713 GX Groningen, the Netherlands

Business Address (2): Institutes of Molecular Physiology and Genetics (UMFG) and Experimental Endocrinology (UEE), Slovak Academy of Science (SAV), Vlarska 3-5, 83101 Bratislava, Slovak Republic.

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Date of Birth: April 17, 1973

Place of Birth: Moscow, Russian Federation

Nationality: Israeli

Countries of Residence: Slovak Republic and the Netherlands

Spoken Languages: Russian, Hebrew, English, Dutch

Personal Status: Single

PRINCIPAL SCIENTIFIC INTEREST

My principal research activities are focused on the pathophysiology of central nervous system (CNS) disorders, interactions between brain neurotransmitters, mechanism of action of CNS drugs and early (preclinical) assessment of their efficacy.

Detailed statement of research interests available at www.bmc-netherlands.nl/doc/research.pdf

Detailed statement of teaching philosophy available at www.bmc-netherlands.nl/doc/teaching.pdf

MAJOR ACHIEVEMENTS

Multidisciplinary education: bachelor degree in biology, master degree in basic medical sciences and PhD degree in neuroscience.

Two postdoctoral fellowships: in neuropharmacology of mood disorders and in translational neuroscience (University of Ottawa Institute of Mental Health Research, 2004-2008).

Fifteen years of research experience, including eight years at postdoctoral level and five years as a senior scientist.

Expertise in various research techniques: electrophysiology, microdialysis, behavior neuroscience, microsensing, and advanced methods of data analysis.

Work experience in both academic and commercial sectors, including participation and leadership in R&D projects based on academy-industry collaboration (Brains On-Line BV, a contract research organization, 2008-2012; University of Groningen Medical Center, 2012-present).

Experience in laboratory management and establishing of new research techniques (founder and head of electrophysiology department in Brains On-Line; founder and director of Neuroken Consulting).

International honors and awards: Rafaelson Award of the International College of Neuropsychopharmacology; Fellowship Awards of the European College of Neuropsychopharmacology; Fellowship Awards of the Society for Biological Psychiatry.

Strong record of publications: authorship in two books and five book chapters.

Thirty four peer-reviewed manuscripts, published in first-line journals, such as *Biological Psychiatry* with **impact factor of 9.5**, and cited (in total) 561 times (**SCI Citation Index 11.68, h-index = 14**).

Fifty six meeting abstracts.

Supervision experience: supervised six diploma students and co-supervised one PhD student.

Guest editor in Bentham Sciences Publishers.

Editorial board member of World Journal of Psychiatry, World Journal of Neurology, and World Journal of Pharmacology.

Ad-hoc reviewer in Biological Psychiatry, British Journal of Pharmacology, European Neuropsychopharmacology, International Journal of

Neuropsychopharmacology, Journal of Psychopharmacology, Neuropharmacology, Neuroendocrinology, Pharmaceuticals.

Expert for the European Union (EU) FP7 Program; Medical Research Council of the UK; National Research Agency (ANR) of France; National Institutes of Health (NIH) of the US; New Eurasia Foundation (Russian Federation).

EDUCATION

- 2008 Dutch (EU) **"Article 9" Course: Licensed Laboratory Animal Scientist**, University of Utrecht, Netherlands
- 2000-2004 **PhD in Neuroscience**, Faculty of Life Sciences, Bar-Ilan University, Ramat-Gan, Israel; completed with highest distinction
- Title of Dissertation: Dynamical mechanism of action of antidepressant drugs
- Supervisor: Prof Gal Yadid
- 2006 **Summer Fellowship in Computational Neuroscience**, University of Grenoble, France
- 1997-2000 **MMedSc in Neurobiology**, Hebrew University of Jerusalem, Israel
- Title of Thesis: Mechanism of action of antidepressants and electroconvulsive shocks: in vivo microdialysis study in the rat brain
- Supervisors: Dr Michael Newman, Dr Eitan Gur and Prof Bernard Lerer
- 1992-1996 **BSc in Biology**, Hebrew University of Jerusalem, Israel
- 1991-1992 **Preparatory Program for Overseas Students**, Hebrew University of Jerusalem, Israel
- 1980-1990 **Secondary School** No 331, Moscow, Russian Federation

EMPLOYMENT HISTORY

- 2013- **Researcher**, Institutes of Molecular Physiology and Genetics (UMFG) and Experimental Endocrinology (UEE), Slovak Academy of Science (SAV), Bratislava, Slovak Republic.

- 2012- **Researcher**, Department of Neuroscience, University of Groningen (RUG) Medical Center (UMCG), Groningen, the Netherlands
- 2012- **Founding Director**, Neuroken Consulting, Groningen, the Netherlands
- 2008-2012 **Senior Scientist**, Brains On-Line BV, Groningen, the Netherlands
- 2008-2012 **Researcher**, Groningen Research Institute of Pharmacy (GRIP), University of Groningen (RUG), Groningen, the Netherlands
- 2004-2008 **Postdoctoral Fellow**, University of Ottawa Institute of Mental Health Research, ON, Canada
- 2003-2006 **Lecturer**, Jerusalem College of Technology, Israel
- 2000-2004 **Teaching Assistant**, Bar-Ilan University, Ramat-Gan, Israel
- 1997-2000 **Blood Bank Technician**, Hebrew University Hadassah Medical Center, Jerusalem, Israel
- 1995-1996 **Research Assistant**, Israeli Nature Reserves Authority, Jerusalem, Israel

INTERNATIONAL PRIZES/AWARDS

- 2013 **Slovak Academy of Sciences Scholarship Award** (Stipendium SAV; Project Title: Role of Neurosecretory Neurons and Calcium Signalling in Depression and Addictive Behaviour: Assessment by in-vivo Electrophysiology; EUR 160,000 for four years)
- 2008 **Fellowship Award**, European College of Neuropharmacology (ECNP)
- Poster Award**, ECNP
- Honorable Mention**, International College of Neuropharmacology (CINP)
- Fellowship Award**, Society of Biological Psychiatry
- 2007 **Prize for Excellence**, Faculty of Medicine, University of Ottawa
- 2006 **Post-Doctoral Fellowship** for the Outstanding PhD Graduates of Bar-Ilan University (Project Title: Electrophysiological investigations of atypical antipsychotic drugs and their

combination with SSRIs on serotonin and norepinephrine neurons; USD 12,000 for one year)

Rafaelsen Award, CINP

Travel Award to attend Workshop of Young Psychopharmacologists in Europe, Nice, France

2005 Bar-Ilan University **President's Prize**

2003 **Travel Fellowship**, University of Grenoble, France

Bar-Ilan University Life Sciences Faculty **Dean's Prize**

2001 **Travel fellowship** to attend the International Meeting of Federation of Biological Psychiatry, Berlin

EDITORIAL AND REVIEWING DUTIES

2004- **Guest Editor**, Bentham Science Publishers

2004- **Ad-Hoc Reviewer**: Biological Psychiatry, British Journal of Pharmacology, European Neuropsychopharmacology, International Journal of Neuropsychopharmacology, Journal of Psychopharmacology, Neuropharmacology, Neuroendocrinology, Pharmaceuticals

2011- **Editorial Board Member**: World Journal of Psychiatry, World Journal of Neurology, and World Journal of Pharmacology

EXPERT ADVISORY DUTIES

2006- **Consultant**, Medical Research Council (MRC) of the UK

2011- **Grant applications reviewer**, National Research Agency (ANR) of France

2012- **Grant applications reviewer**, Seventh Framework Program (FP7), Commission (EC) of the European Union (EU).

2013- **Member, Early Career Reviewer (ECR) Program**, National Institute of Health (NIH), USA

2013- **Consultant**, National Centre for the Replacement, Refinement and Reduction of Animals in Research (NC3Rs), UK

2013- **Grant applications reviewer**, New Eurasia Foundation and the Directorate of State Scientific and Technical Programmes, Russian Federation.

SELECTED PUBLICATIONS

Selected out of 37; SCI Citation Index 11.68; h-index 14.

The full list available at <http://www.bmcnetherlands.nl/doc/publications.pdf>

1. Flik G, Folgering JHA, Cremers TIFH, Westerink BHC, **Dremencov E**. Interaction between brain histamine and serotonin, norepinephrine and dopamine systems: *in vivo* electrophysiology and microdialysis study. *J Neurosci*, in submission.
2. Flik G, **Dremencov E** (GF and ED have equal contribution), Cremers TIFH, Folgering JHA and Westerink BHC. The role of cortical and hypothalamic histamine-3 receptors in modulation of central histamine neurotransmission: *in vivo* electrophysiology and microdialysis study. *Eur J Neurosci* 34 (2011) 1747-55
3. **Dremencov E**, El Mansari M, Blier P. Brain Norepinephrine System as a Target for Antidepressant and Mood Stabilizing Medications. *Current drug targets* 10 (2009) 1061-8
4. **Dremencov E**, El Mansari M, Blier P. Effect of sustained serotonin reuptake inhibition on the firing activity of dopamine neurons in the rat ventral tegmental area. *Journal of Psychiatry and Neuroscience* 34 (2008) 223-9
5. **Dremencov E**, El Mansari M, Blier P. Effect of sustained serotonin reuptake inhibition on the firing of dopamine neurons in the rat ventral tegmental area. *Journal of Psychiatry and Neuroscience* 2008
6. **Dremencov E**, El Mansari M, Blier P. Noradrenergic augmentation of escitalopram response by risperidone: Electrophysiologic studies in the rat brain. *Biological Psychiatry* 61 (2007) 671-8
7. **Dremencov E**, Weizmann I, Kinor N, Gispan-Herman I, Yadid G. Modulation of dopamine transmission by 5HT_{2C} and 5HT₃ receptors: a role in the antidepressant response. *Current Drug Targets* 7 (2006) 165-175
8. **Dremencov E**, Newman ME, Kinor N, Blatman-Jan G, Blatman-Jan G, Schindler CJ, Overstreet DH, Yadid G. Hyperfunctionality of serotonin-2C receptor-mediated inhibition of accumbal dopamine release in an animal model of depression is reversed by antidepressant treatment. *Neuropharmacology* 48 (2005) 34-42

9. **Dremencov E**, Gispan-Herman I, Rosenstein M, Mendelman A, Overstreet DH, Zohar J, Yadid G. Serotonin-dopamine interaction is critical for fast onset of antidepressant treatment. *Progress in Neuro-psychopharmacology & Biological Psychiatry* 28 (2004) 141-7
10. **Dremencov E**, Gur E, Lerer B, Newman ME. Subchronic fluoxetine administration to rats: effects on 5-HT autoreceptor activity as measured by in vivo microdialysis. *European Neuropsychopharmacology* 10 (2000) 229-236

RESEARCH INTERESTS

MY PRIMARY RESEARCH INTEREST is pathophysiology and treatment of CNS disorders. My research is focusing on the role of interactions between various neurotransmitters and neuromodulators and their receptors in antidepressant and antipsychotic drug response. I have been investigating the interactions between γ -aminobutyric acid (GABA), serotonin (5-HT), norepinephrine (NE), dopamine (DA) and histamine (HA) on system, cellular, and molecular levels, using behavior, microdialysis, electrophysiology, and molecular biology methods. Recently I started to investigate the role of adenosine neurotransmission in pathophysiology and treatment of CNS disorders, focusing in interactions between adenosine, DA, and NE receptors. My future plans are to investigate in vivo (using electrophysiology, microdialysis and/or microsensing) the role of neurosecretory cells of hypothalamus (oxytocin, vasopressin, and β -endorphin neurons).

RESEARCH GRANTS

2006-2007 **Electrophysiological investigations of atypical antipsychotic drugs and their combination with SSRIs on serotonin and norepinephrine neurons**

Post-doctoral fellowship support (12,000 \$US)
Sponsor: Bar-Ilan University, Ramat-Gan, Israel

2013-2017 **Role of Neurosecretory Neurons and Calcium Signalling in Depression and Addictive Behaviour: Assessment by in-vivo Electrophysiology.**

Scholarship Program of the Slovak Academy of Sciences (180,000 EUR)

2014-2018 **Mechanisms of antidepressant and anxiolytic effect of physical activity: focus on the role of hypothalamic neuropeptides.**

Commission (EC) of European Union Career Integration Grant (100,000 EUR, under revision).

PARTICIPATION IN PROJECTS

2013-present **Role of Neurosecretory Neurons and Calcium Signalling in Depression and Addictive Behaviour: Assessment by in-vivo Electrophysiology.**
Principal Investigator (PI): E Dremencov

Funding source: Slovak Academy of Science

2010-present **Molecular and functional interactions between adenosine-2A (A_{2A}), dopamine-2 (D₂), and α_2 -adrenergic receptors. Potential role in pathophysiology and treatment of CNS disorders.**

Principal Investigator (PI): E Dremencov

Funding source: Brains On-Line BV

2010-present **Comparison of the depression-like behavior and serotonergic system between Wistar and Wistar-Kyoto rat strains (an animal model of depression).**

PI: Y Kawahara, University of Kurume, Kurume, Japan

2009-present **Interactions between brain histamine system and other monoamines (5-HT: serotonin, NE: norepinephrine, and DA: dopamine). Potential role in pathophysiology and treatment of CNS disorders.**

PIs: BHC Westerink, E Dremencov

Funding source: Brains On-Line BV

2008-2011 **Neuropharmacology and neurophysiology of brain histamine system. Potential role in pathophysiology and treatment of CNS disorders.**

PIs: BHC Westerink, E Dremencov

Funding source: Brains On-Line BV

- 2010-2011 **In-vivo effect of tramadol (atypical opioid with monoamine re-uptake inhibitor) on 5-HT and NE neurotransmission.**
PIs: E Dremencov, TIFH Cremers
Funding source: Grünenthal GmbH
- 2008-2010 **Flibanserin and monoamine pathways in hypoactive sexual disorder.**
PIs: E Dremencov, TIFH Cremers
Funding source: Boehringer Ingelheim Pharma GmbH
- 2008-2010 **Effect of combined administration of selective serotonin reuptake inhibitors (SSRIs) and benzodiazepines. Role of 5-HT-GABA interactions in antidepressant response.**
PIs: E Dremencov, TIFH Cremers
Funding source: Lundbeck A/S, Brains On-Line BV
- 2007-2008 **Molecular and functional interactions between dopamine D₁ and D₂ receptors and their role in condition, memory, and addiction.**
PI: X Zhang, University of Ottawa Institute of Mental Health Research (IMHR)
Funding source: Canadian Institutes of Health Research (CIHR)
- 2004-2007 **Role of interactions between 5-HT, NE, and DA in antidepressant response.**
PI: P Blier, University of Ottawa Institute of Mental Health Research (IMHR)
Funding source: Canadian Institutes of Health Research (CIHR)
- 2004-2007 **Augmentation of antidepressant drug response by atypical antipsychotic drugs.**
PI: P Blier, E Dremencov
Funding source: Johnson and Johnson US, Lundbeck A/S, Bar-Ilan University (Israel)
- 2000-2004 **Modulation of dopamine transmission by 5HT_{2C} and 5HT₃ receptors: a role in the antidepressant response.**
PI: G Yadid, Bar-Ilan University, Ramat-Gan, Israel
Funding source: Israeli Academy of Sciences
- 2000-2004 **Neuropharmacology of fast-onset antidepressant drugs. Microdialysis, electrophysiology, and behaviour studies in**

Flinders sensitive line (FSL) rats, and animal model of depression.

PI: G Yadid, Bar-Ilan University, Ramat-Gan, Israel

Funding source: Israeli Academy of Sciences

2000-2004 **Nonlinear analysis neuronal firing activity as a predictor for depressive-like behavior and antidepressant response.**

PI: G Yadid, Bar-Ilan University, Ramat-Gan, Israel

Funding source: Israeli Academy of Sciences

1997-2000 **Role of hippocampal and hypothalamic 5-HT system in mechanism of action of antidepressant drugs and electroconvulsive shocks (ECS).**

PIs: ME Newman, B Lerer, Hebrew University Hadassah Medical Center

Funding source: Israel-US Binational Scientific Foundation

1997-2000 **Induced high cortisosterone levels as a biochemical *in-vivo* model of depression.**

PIs: ME Newman, B Lerer, Hebrew University Hadassah Medical Center

Funding source: Israel-US Binational Scientific Foundation

1997-2000 **Role of food restriction on brain serotonin neurotransmission.**

PIs: ME Newman, B Lerer, Hebrew University Hadassah Medical Center

Funding source: Israel-US Binational Scientific Foundation

1997-2000 **Mechanism of action of transcranial magnetic stimulations (TMS).**

PIs: ME Newman, B Lerer; Funding source: Israel-US Binational Scientific Foundation

SUPERVISORY EXPERIENCE

07/08-Present Gunnar Flik. PhD project: **Role of brain histamine system in emotions and cognition.** University of Groningen, Netherlands. Co-supervisor with Prof. BHC Westerink and Dr TIFH Cremers.

10/05-09/06 Nahum Lubin and Mordechai Rosenstein, Diploma project: **Characterization of clustering pattern using modified**

genetic algorithm: application for experimental time-series analysis in neuropharmacological research.
Jerusalem college of Technology

10/05-09/06 Todaya Bowker and Sarah Elkoby, Diploma Project: **Cluster identification using the hidden Markov model: application for electrophysiological and behavioral time-series analysis.** Jerusalem college of Technology

10/04-09/05 Sofia Goutkin and Elizabeth Kravchinsky, Diploma Project: **Nonlinear methods of analysis of neuronal firing time-series obtained in vivo.** Jerusalem college of Technology

TEACHING OF FRONTAL COURSES

10/03-09/04 **System physiology for Biotechnology and Bioinformatics students.** Faculty of Computer Science, Jerusalem college of Technology, Jerusalem Israel

COORDINATION OF LABORATORY COURSES

10/01-09/04 **Introduction to Biology for Chemistry Students.** Life Sciences Faculty, Bar-Ilan University, Ramat-Gan, Israel

TEACHING ASSISTANCE

10/00-09/01 **Introduction to Biology for Chemistry Students.** Life Sciences Faculty, Bar-Ilan University, Ramat-Gan, Israel

10/00-09/01 **Introductory Microbiology for Biology Students.** Life Sciences Faculty, Bar-Ilan University, Ramat-Gan, Israel

10/00-09/04 **System Physiology for Biology Students.** Life Sciences Faculty, Bar-Ilan University, Ramat-Gan, Israel

10/01-09/02 **Introduction to Computers.** Life Sciences Faculty, Bar-Ilan University

ANNEXES

CV (an electronic copy): <http://www.bmc-netherlands.nl/doc/CV.pdf>

List of publications: www.bmc-netherlands.nl/doc/publications.pdf

Selected manuscripts: www.bmc-netherlands.nl/doc/manuscripts.pdf

Recommendations: www.bmc-netherlands.nl/doc/recommendations.pdf

Awards, diplomas and certificates: www.bmc-netherlands.nl/doc/diplomas.pdf