



REDBRAIN Closing Conference

Knowledge transfer in redox biology

for developing advanced molecular tools

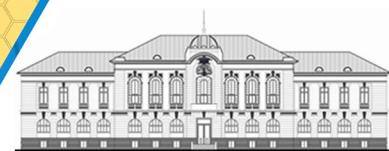
in neurodegenerative diseases

- focus on the signature of NRF2 transcription factor in diagnosis and therapy

Wednesday

6 July 2022

Starting at 11:00



PROGRAMME

11⁰⁰- 11¹⁰ Welcome

Dr. Mircea Leabu – Scientific director

Prof. Antonio Cuadrado – REDBRAIN project manager, BenBedPhar Leader

11¹⁰ - 11²⁵ The REDBRAIN project at a glance

Dr. Gina Manda (INCD „Victor Babeş”)

11²⁵ - 12¹⁰ Plenary lecture

Brain-protective mechanisms of the transcription factor NRF2: toward a common strategy for neurodegenerative diseases

Prof. Antonio Cuadrado

INCD „Victor Babeş”, Bucharest, Romania; Universidad Autónoma de Madrid, España; CIBERNED, Ciber de Investigación Biomédica en Red en Enfermedades Neurodegenerativas, Madrid, España

12¹⁰ - 12³⁰ Coffee break

12³⁰ - 14⁰⁰ Session 1 In search of inflammation and redox biomarkers

Chair: Prof. Bogdan-Ovidiu Popescu

Surfing in the blood of Alzheimer's patients

Dr. Gina Manda (INCD „Victor Babeş”)

SRXN1 – an early blood biomarker in cognitive decline

Dr. Ioana Cracana (Medinst Diagnostic)

Dr. Elena Milanesi (INCD „Victor Babeş”)

Insight into the blood and brain of mice with Alzheimer's disease

Dr. Gina Manda and Dr. Catalina Anca Cucos (INCD „Victor Babeş”)

NRF2 and inflammation in Alzheimer's disease (online)

Dr. Michel Edwar Mickael

Institute of Genetics and Animal Biotechnology of the Polish Academy of Sciences, Magdalanka, Poland

Inflammation and redox signatures in cardiovascular pathology

Dr. Elena Milanesi (INCD „Victor Babeş”)

Future perspectives

14⁰⁰-14³⁰ REDBRAIN café

14³⁰ -16⁰⁰ Session 2 Translating NRF2 research from bed to bench

Chairs: Prof. Antonio Cuadrado and Dr. Gina Manda

COST Action CA20121 – BenBedPhar

Prof. Antonio Cuadrado – BenBedPhar leader

BenBedPhar networking

REDBRAIN AT A GLANCE



Project coordinator



„Victor Babeş” National Institute of Pathology

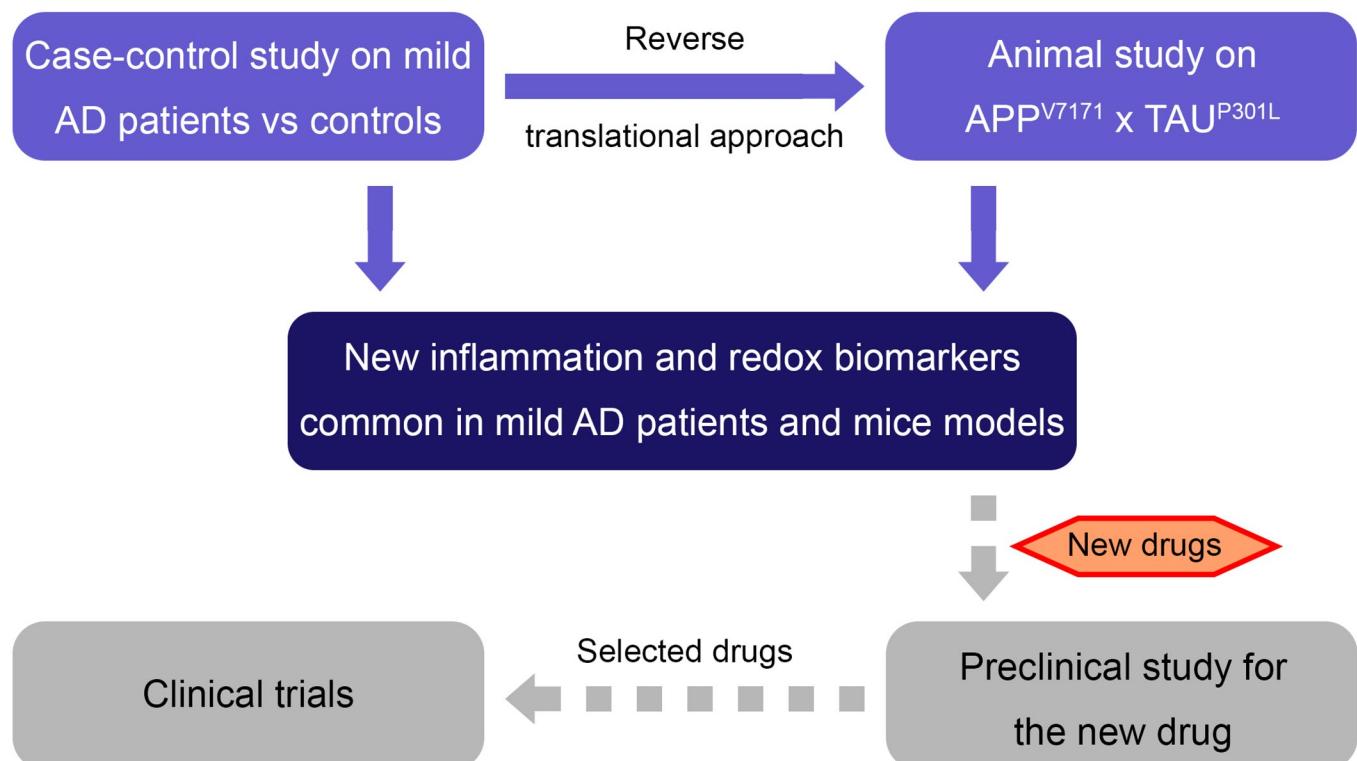
Prof. Antonio Cudrado, Universidad Autónoma de Madrid, CIBERNED - Ciber de Investigación Biomédica en Red en Enfermedades Neurodegenerativas, Madrid, Spain

Project duration: 01.09.2016 – 31.08.2022

Budget: 8.617.500 lei

Objective: to develop and strengthen R&D and innovative competitiveness of “Victor Babes” National Institute of Pathology by building new skills and transferring knowledge in order to create a highly competitive scientific team, able to conduct cutting edge research in neurosciences, addressing neurodegenerative and neuroinflammatory diseases, with a main focus on Alzheimer’s disease.

The concept:



ACHIEVEMENTS

24 scientific articles

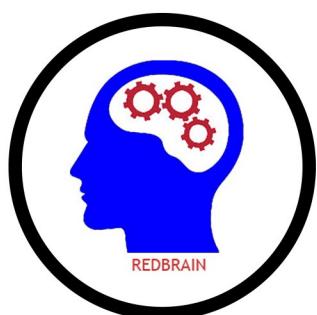
10 papers with original results,
out of which 3 public-private publications
Cumulative impact factor: 47.958
14 review articles
Cumulative impact factor: 70.213

National patent request

BOPI, vol 11/2.11.2021,
pg. A23J

39 communications at national / international congresses

COST Action CA20121 on NRF2 medicine and therapeutics



Technology transfer

Project-dedicated biobank for future studies

Seven young scientists trained in REDBRAIN

Standard Operating Procedures

PUBLICATIONS

Original scientific articles

1. Milanesi, E. et al. 2021. "Distinctive Under-Expression Profile of Inflammatory and Redox Genes in the Blood of Elderly Patients with Cardiovascular Disease". *J Inflamm Res.* 14:429-442. doi: 10.2147/JIR.S280328. (***public-private partnership**). Impact Factor 6.922.
2. Milanesi, E. et al. 2021. "Whole blood expression pattern of inflammation and redox genes in mild cognitive". *Journal of Inflammation Research.* Volume 2021, 14: 6085—6102, doi: 10.2147/JIR.S334337 (***public-private partnership**). Impact Factor 6.922.
3. Cucos, C.A. et al. 2022. "Sulfiredoxin-1 blood mRNA expression levels negatively correlate with hippocampal atrophy and cognitive decline". *F1000Res.* 11:114. doi: 10.12688/f1000research.76191.2. (***public-private partnership**). Impact Factor 1.709.
4. Milanesi, E. et al. 2021. "Reduced blood RGS2 expression in mild cognitive impairment patients". *Frontiers in Aging Neuroscience.* doi: 10.3389/fnagi.2021.738244. Impact Factor 5.270.
5. Arsene, D.E. et al. 2022. "Viral oncogenesis in tumors of the central nervous system: reality or random association? A retrospective study on archived material". *J Cell Mol Med.* 26(5):1413-1420. doi: 10.1111/jcmm.17064. Impact Factor 5.310.
6. Cucos, C.A. et al. 2022. "Increased MYD88 blood transcript in a mouse model of Alzheimer's disease". *BMC Neurosci.* 23(1):13. doi: 10.1186/s12868-022-00699-8. Impact Factor 3.070.
7. Cucos, C.A. et al. 2022. "Altered Blood and Brain Expression of Inflammation and Redox Genes in Alzheimer's Disease, Common to APPV717I × TAUP301L Mice and Patients". *Int J Mol Sci.* 23(10):5799. doi: 10.3390/ijms23105799. Impact Factor 5.924.

Original scientific articles in collaboration with other research groups

8. Ansari, A. et al. 2019. "miR-146a and miR-181a are involved in the progression of mild cognitive impairment to Alzheimer's disease". *Neurobiol Aging.* 82:102-109. doi: 10.1016/j.neurobiolaging.2019.06.005. Impact Factor 4.347.
9. Maffioletti, E. et al. 2020. "miR-146a Plasma Levels Are Not Altered in Alzheimer's Disease but Correlate With Age and Illness Severity". *Front Aging Neurosci.* 17;11:366. doi: 10.3389/fnagi.2019.00366. Impact Factor 4.364.
10. Hadar, A. et al. 2018. "SIRT1, miR-132 and miR-212 link human longevity to Alzheimer's Disease". *Scientific Reports.* 8(1):8465, doi:10.1038/s41598-018-26547-6. Impact Factor 4.12.

PUBLICATIONS

Scientific reviews

1. Ghezzi, P. et al. 2017. "Oxidative stress and inflammation induced by environmental and psychological stressors: a biomarker perspective". *Antioxidants and Redox Signaling*. 28(9):852-872. doi: 10.1089/ars.2017.7147. Impact Factor 6.73.
2. Rojo, AI. et al. 2017. "NRF2 deficiency replicates transcriptomic changes in Alzheimer's patients and worsens APP and TAU pathology". *Redox Biology*. 13:444-451. doi: 10.1016/j.redox.2017.07.006. Impact factor 6.760.
3. Cuadrado, A. et al. 2018. "Transcription factor NRF2 as a therapeutic target for degenerative diseases: a systems medicine approach." *Pharmacol Rev*. 70(2):348-383. doi: 10.1124/pr.117.014753. Impact factor 18.886.
4. Robledinos-Antón, N. et al. 2019. "Activators and inhibitors of NRF2: a review of its clinical development". *Oxidative Medicine and Cellular Longevity*. 2019:9372182. doi: 10.1155/2019/9372182. Impact factor 4.580.
5. Manda, G. et al. 2020. "Nordihydroguaiaretic acid: from herbal medicine to clinical development for cancer and chronic diseases". *Front. Pharmacol., section Experimental Pharmacology and Drug Discovery*. 11:151. doi: 10.3389/fphar.2020.00151. Impact factor 4.225.
6. Mickael, M.E. et al. 2019. "NRF2 drug repurposing using a question-answer artificial intelligence system". Preprint. doi: <https://doi.org/10.1101/594622>.
7. Kubick, N. et al. 2020. "Repurposing Zileuton as a Depression Drug Using an AI and In Vitro Approach". *Molecules*. 25(9), 2155; doi: 10.3390/molecules25092155. Impact factor 3.267.
8. Cuadrado, A. et al. 2020. "Can Activation of NRF2 Be a Strategy against COVID-19?". *Trends in Pharmacological Sciences*. 41(9): 598–610. Impact factor 11.523.
9. Pajares, M. et al. 2020. "Neuroinflammation in Parkinson's disease: mechanisms and therapeutic implications". *Cells*. 9(7), 1687; doi:10.3390/cells9071687, Impact factor 4.366.
10. Book chapter "Perspectives on the Clinical Development of NRF2-Targeting Drugs"; Diego L, Fernandez-Gines R, Manda G, Cuadrado A, within the book "Reactive Oxygen Species: Sources, Targets and Therapeutic Implications", Handbook of Experimental Pharmacology, Springer Nature, doi: 10.1007/164_2020_381.
11. Manda, G. et al. 2020. "The transcription factor NRF2 shapes the identity of radio-resistant tumor cells". vol. 1, p. 0049-0081, doi:10:47570/joci.2020.004.
12. Kubick, N. et al. 2020. "What has single-cell RNA sequencing revealed about microglial neuroimmunology?". *Immun Inflamm Dis*. 8(4):825-839. doi: 10.1002/iid3.362. Impact factor 2.5.
13. Kubick, N. et al. 2020. "Drugs Modulating CD4+ T Cells Blood–Brain Barrier Interaction in Alzheimer's Disease". *Pharmaceutics*. 12(9), 880, 2020. Impact factor 4.421.

Submitted patent request at OSIM (Romanian State Office for Inventions and Trademarks) "METODĂ DE EVALUARE A DEZINHIBIȚIEI COMPORTAMENTALE ÎNTR-UN MODEL ANIMAL DE BOALĂ ALZHEIMER (ȘOARECI TRANSGENICI APP/TAU), UTILIZÂND LABIRINTUL RADIAL CU OPT BRĂȚE" by Cucos CA, Milanesi E, Dobre M, Anghelache L, Cuadrado A, Manda G; OSIM registration number: A2021/00377. The abstract of the patent request is published in BOPI, volum 11/2021 of 29.11.2021, page A23J.

THE TEAM

The management team

Prof. Mihail Eugen Hinescu – executive coordinator
Ec. Mariana Georgescu – economic manager
Ec. Mihaela Maria Belu – economic manager
Lucretia Soimulescu – public procurement
Irina Cojocaru – legal adviser
Marian Maciuceanu-Zarnescu – legal adviser
Ec. Liliana Ionica Ion – assistant manager

The core REDBRAIN team

Antonio Cuadrado – project coordinator
Gina Manda
Bogdan-Ovidiu Popescu
Elena Milanesi
Maria Dobre
Catalina Anca Cucos

Clinicians

Prof. Bogdan-Ovidiu Popescu (Colentina Clinical Hospital) – clinical study coordinator
Prof. Catalina Tudose (Clinical Hospital of Psychiatry „Profesor Doctor Alexandru Obregia“)
Prof. Luiza Spiru (International Foundation “Ana Aslan”)
Prof. Gabriel Ioan Prada (National Institute of Gerontology and Geriatry “Ana Aslan”)
Prof. Ovidiu-Alexandru Băjenaru (University Hospital Bucharest)

Molecular studies

Maria Dobre
Elena Milanesi
Catalina Anca Cucos

Flow cytometry

Radu Huica
Mihaela Surcel

Protein multiplexing

Ana-Maria Enciu
Elena Codrici
Daniela Popescu

Immunology

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Animal study

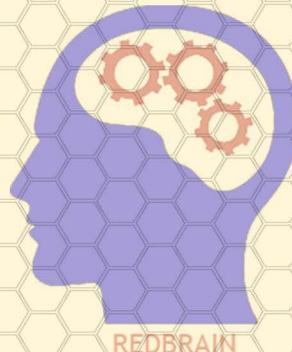
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Vlad Voiculescu
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“Victor Babeş”

National Institute of Pathology



Knowledge transfer in redox biology for developing advanced molecular tools in neurodegenerative diseases - focus on the signature of NRF2 transcription factor in diagnosis and therapy - REDBRAIN, Project P37_732, 2016 - 2022

Proiect cofinanțat din Fondul European de Dezvoltare Regională prin Programul Operational Competitivitate 2014-2020

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