

SARS-CoV-2 inducirana aktivacija endogenih patogenih retrovirusnih ovojnica HERV-W: Korak prema personaliziranoj terapiji COVID-19 pacijenata



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<https://www.hervcovproject.eu>



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prof. dr. sc. Vladimira Vuletić, dr. med.
Valentino Rački, dr. med.

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9 institucija



5 država





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Suradnjom do
novih spoznaja

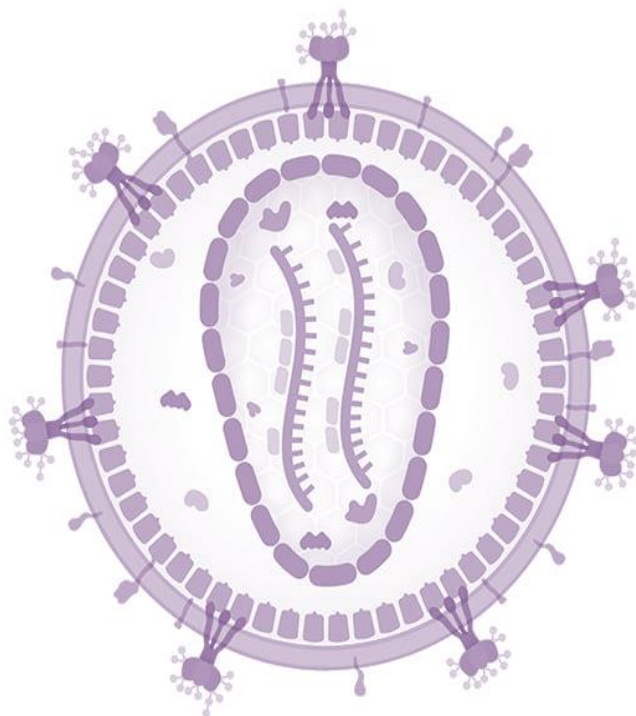
Zašto  **HERVCOV** ?



Što determinira odgovor organizma na
COVID-19?



Endogeni retrovirusi
















Retrovirus

Integracija u DNA

Zaostajanje unutar DNA
generacijski

5-8% humanog genoma

Human endogenous retroviruses and the inflammatory response: A vicious circle associated with health and illness

 Sara Coelho Rangel¹,  Michelly Damasceno da Silva¹,  Amanda Lopes da Silva²,
 Juliana de Melo Batista dos Santos³,  Lucas Melo Neves¹,  Ana Pedrosa⁴, 
Fernanda Monteiro Rodrigues¹,  Caio dos Santos Trettel⁵,  Guilherme Eustáquio Furtado⁶,
 Marcelo Paes de Barros⁵,  André Luis Lacerda Bachi¹,  Camila Malta Romano^{2,7} and
 Luiz Henrique Da Silva Nali^{1*}

“Although the **overexpression of HERVs** and other retroelements in several pathological and autoimmune diseases is recognized, **there is little mechanistic understanding of how HERVs contribute to local or systemic inflammation.**”

HERV-W (humani endogeni retrovirus-W)

Multipla skleroza

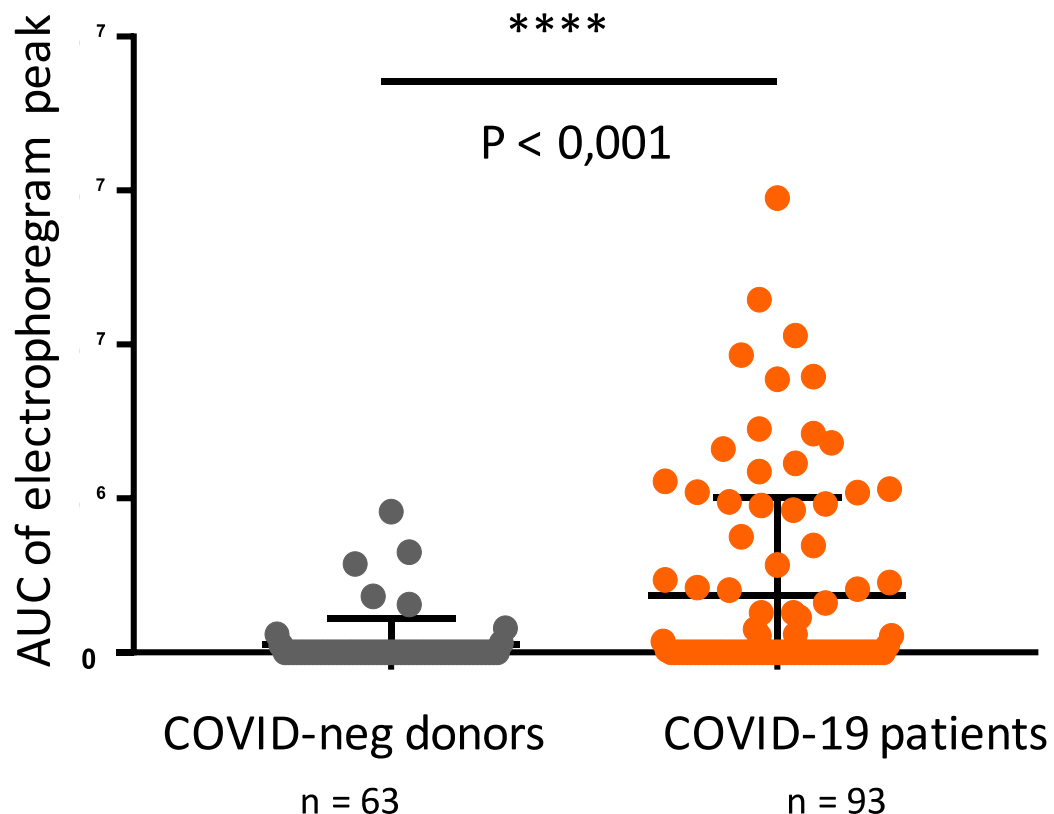
Guillain-Barre sindrom

Shizofrenija

Slokar G, Hasler G. Human Endogenous Retroviruses as Pathogenic Factors in the Development of Schizophrenia. *Front Psychiatry*. 2016;6:183. Published 2016 Jan 11. doi:10.3389/fpsy.2015.00183.

Faucard R, Madeira A, Gehin N, et al. Human Endogenous Retrovirus and Neuroinflammation in Chronic Inflammatory Demyelinating Polyradiculoneuropathy. *EBioMedicine*. 2016;6:190-198. doi:10.1016/j.ebiom.2016.03.001





Antony JM, Deslauriers AM, Bhat RK, Ellestad KK, Power C. Human endogenous retroviruses and multiple sclerosis: innocent bystanders or disease determinants? *Biochim Biophys Acta*. 2011 Feb;1812(2):162-76. doi: 10.1016/j.bbdis.2010.07.016. Epub 2010 Aug 6. PMID: 20696240; PMCID: PMC7172332.



Production of HERV-W envelope soluble antigen in sera from COVID-19 patients, detected using Immuno-capillary Western-Blot (WES) analysis. Multicentric analysis, nonpublished data from partners of HERVCOV consortium.

Neobjavljeni podaci

HERV-W ENV antigenemia and correlation of increased anti-SARS-CoV-2 immunoglobulin levels with post-COVID-19 symptoms

 Karen Giménez-Orenga^{1†},
 Justine Pierquin^{2†},
 Joanna Brunel²,
 Benjamin Charvet

²,  Eva Martín-Martínez³,
 Hervé Perron^{2,4†} and
 Elisa Oltra^{5,6†}

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² Geneuro-Innovation, Bioparc Laënnec, Lyon, France

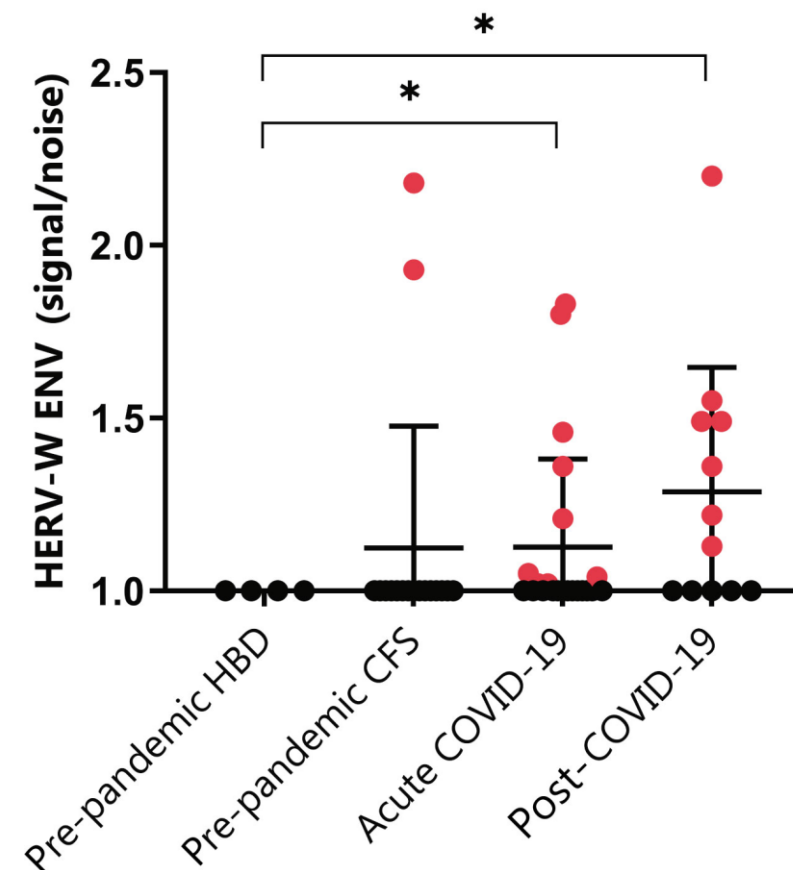
³ National Health Service, Manises Hospital, Valencia, Spain

⁴ GeNeuro, Geneva, Switzerland

⁵ Department of Pathology, School of Health Sciences, Universidad Católica de Valencia San Vicente Mártir, Valencia, Spain

⁶ Centro de Investigación Traslacional San Alberto Magno, Universidad Católica de Valencia San Vicente Mártir, Valencia, Spain

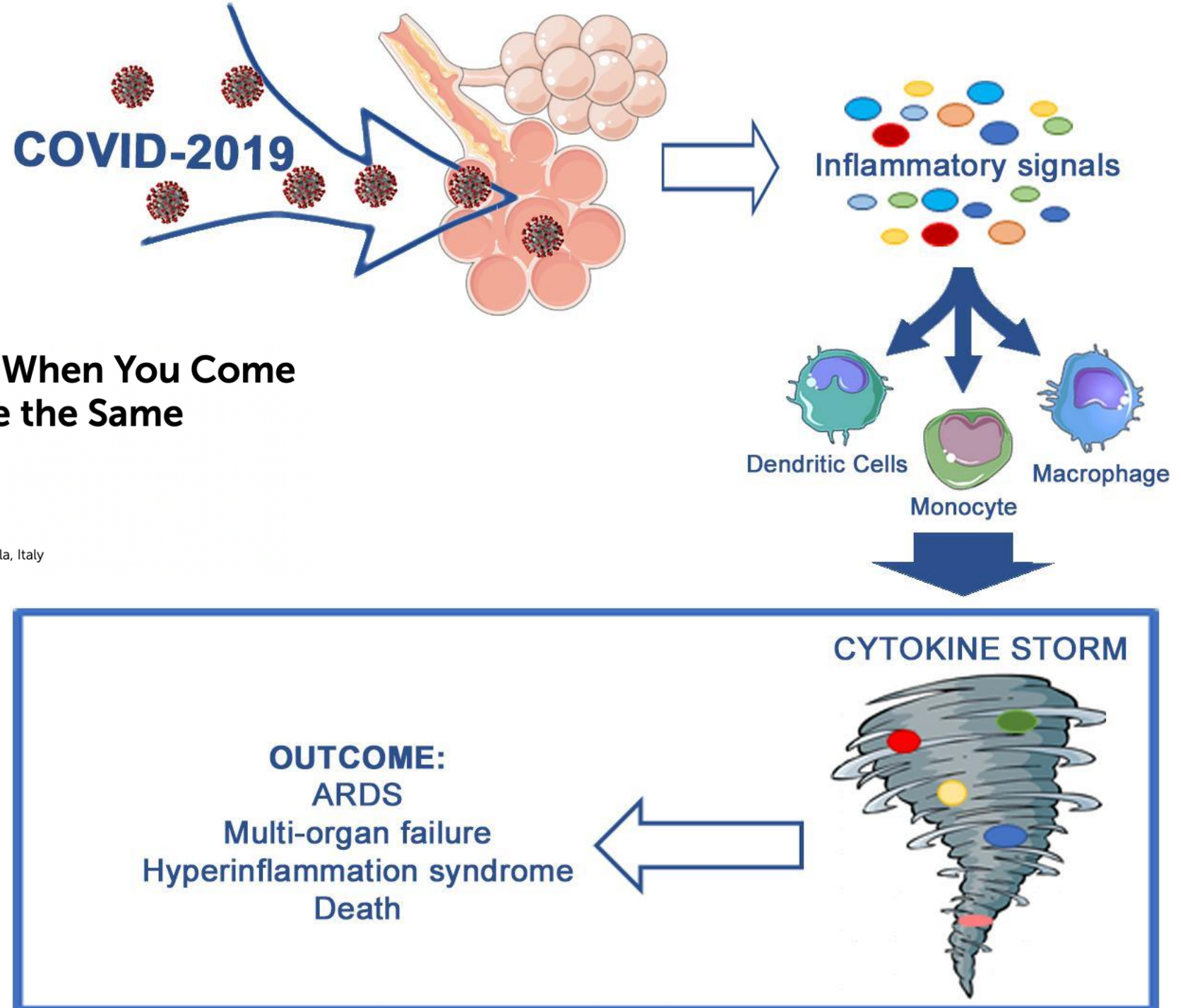
- Plasma negative for HERV-W ENV
- Plasma positive for HERV-W ENV



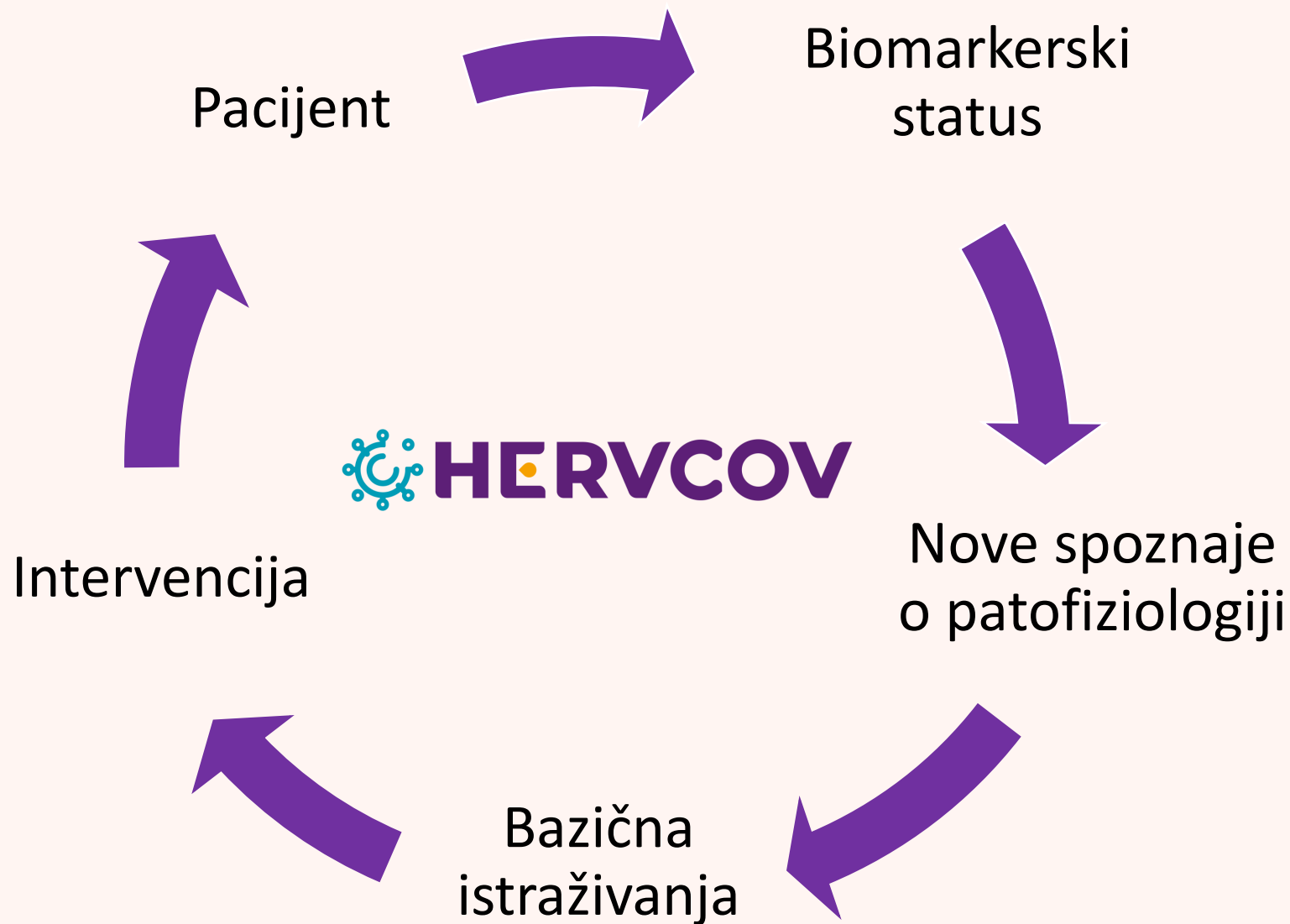
Cytokine Storm in COVID-19: "When You Come Out of the Storm, You Won't Be the Same Person Who Walked in"

 Vanessa Castelli*,  Annamaria Cimini and  Claudio Ferri*

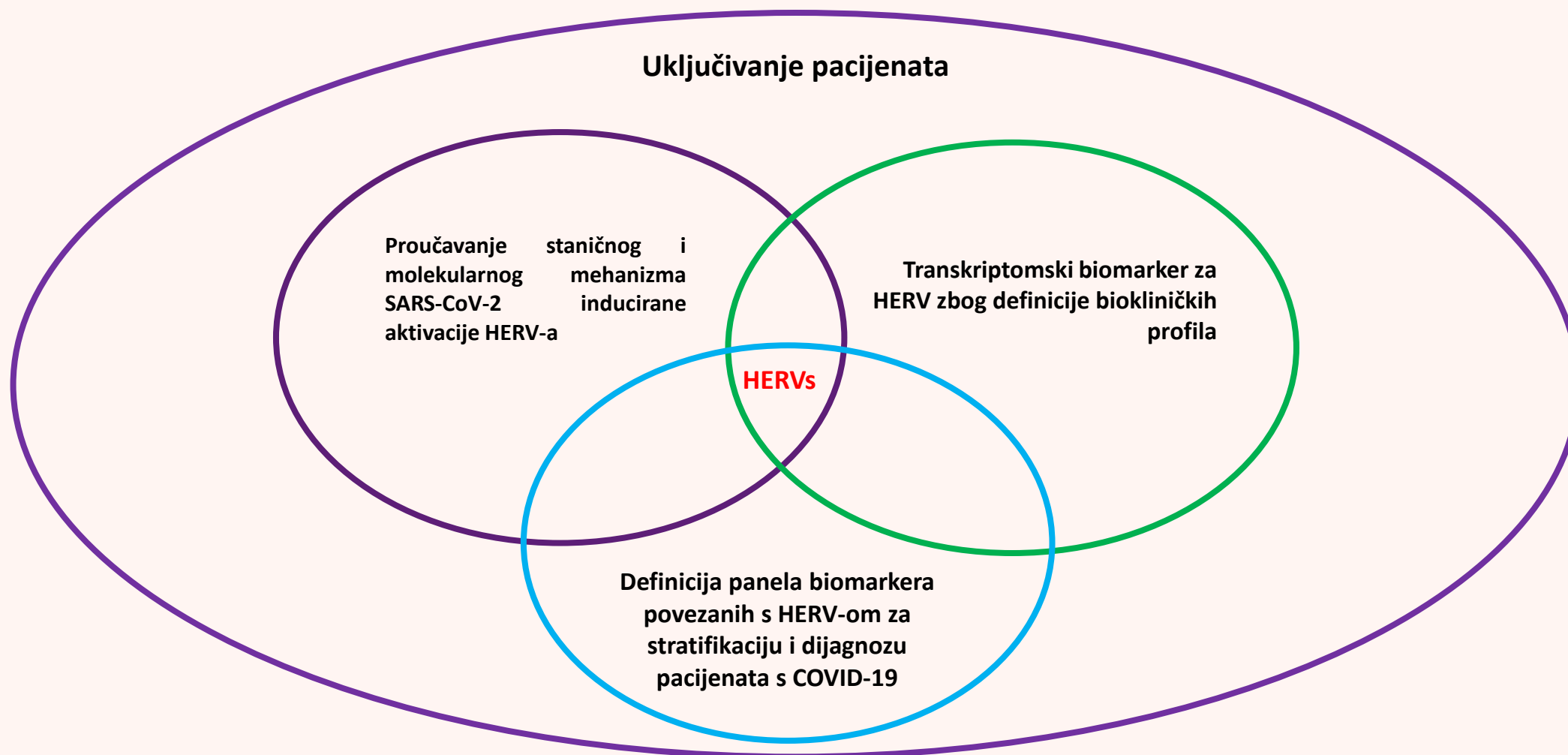
Department of Life, Health and Environmental Sciences, University of L'Aquila, L'Aquila, Italy



Translacijski pristup



SARS-CoV-2 inducirana aktivacija endogenih patogenih retrovirusnih ovojnica HERV-W: Korak prema personaliziranoj terapiji COVID-19 pacijenata



Naša primarna uloga



Uključivanje akutnih i post-COVID pacijenata u studiju

Jedini centar s neurološkim pacijentima

Jedini centar koji prikuplja cerebrospinalni likvor

Na kraju petogodišnjeg istraživačkog perioda očekujemo:

- Opisati stanične i molekularne mehanizme povezane sa aktivacijom HERV-W izazvanom SARS-CoV-2 infekcijom;
- Procijeniti patogene učinke HERV proteina u različitim kliničkim oblicima bolesnika s COVID-19;
- Odrediti utjecaj cijepljenja protiv COVID-19 na ekspresiju HERV-W kod zdravih osoba;
- Uspostaviti transkriptomski profil ekspresije HERV-a povezanog s COVID-19 za personaliziranu medicinu;
- Definirati panel biomarkera koji se odnosi na HERV za stratifikaciju pacijenata, dijagnostiku, prognozu i terapijske smjernice za COVID-19.

Translacijska istraživanja nastoje dati značajnije, primjenjive rezultate koji **izravno koriste ljudskom zdravlju.**





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