

SCIENCE AND ENDOBIOGENY



In the Mountains, Albert Bierstadt, 1867

ENDO BIOGENY IN CLINICAL PRACTICE: RECENT ADVANCES AND APPLICATIONS

With decades of training, a four volume book series [The Theory of Endobiogeny](#), and clinical studies, the recognition and study of Endobiogeny continues to grow in the scientific literature. In this section we present recent peer-reviewed publications referencing Endobiogeny and/or conducting clinical research using the indexes of the biology of functions / [GEMMA Bio expert system](#).

Biology of Functions

Mačionienė E, Serapinas D, Miglinas M. Endobiogenic Biology of Functions Indices in a Cohort of Kidney Transplant Recipients. *Medicina* 2024, 60, 1016-1031.

Link: <https://www.mdpi.com/1648-9144/60/6/1016>

Summary

In this article, nephrologist Dr. Mačionienė and her colleagues determined that notable differences were present in certain indexes of the biology of functions between kidney transplant recipients with graft tolerance vs. rejection.

Abstract

Background and Objectives:

Endobiogeny is a global systems approach to human biology based on the concept that the endocrine system manages the metabolism. Biology of function (BoF) indices are diagnostic tools in endobiogenic medicine that reflect the action of the endocrine system on the cells and the metabolic activity of an organism. Kidney transplant recipients are a very specific patient population due to their constant use of immunosuppressive agents such as steroids and anamnesis of chronic kidney disease. The aim of this study was to assess the tendencies of endobiogenic BoF indices in a kidney transplant recipient population and to determine the relationship between BoF index values and histology-proven kidney transplant rejection.

Materials and Methods:

A total of 117 kidney transplant recipients undergoing surveillance or indication allograft biopsy were included in this study. Endobiogenic BoF indices were calculated from complete blood count tests taken before the kidney biopsy. Histology samples were evaluated by an experienced pathologist according to the Banff classification system. Clinical and follow-up data were collected from an electronic patient medical record system.

Results:

Overall, <35% of the patients had BoF index values assumed to be normal, according to the general population data. Additionally, >50% of the patients had lower-than-normal adaptation, leucocyte mobilization, genital, and adjusted genital ratio indices, while the Cata-Ana, genito-thyroid ratio, adrenal gland, and cortisol indices were increased in >50% of the transplant recipients. The adaptation index was significantly higher in patients with biopsy-proven transplant rejection and demonstrated an AUC value of 0.649 (95%CI 0.540–0.759) for discriminating rejectors from patients without transplant rejection.

Conclusions:

Most of the kidney transplant recipients had abnormal BoF index values, reflecting increased corticotropic effects on their cells. The adaptation index distinguished patients with biopsy-proven transplant rejection from those without it.

Significance: The authors referred to multiple endobiogeny publications, books, theoretical and clinical study articles to explain why they studies the indexes, the relevance of the indexes and its implications for clinical care.

Citation:

21. Lapraz, J.-C.; Hedayat, K.M. Endobiogeny: A Global Approach to Systems Biology (Part 1 of 2). Glob. Adv. Health Med. 2013, 2, 64–78. <https://doi.org/10.7453/gahmj.2013.2.1.011>.
22. Lapraz, J.-C.; Hedayat, K.M.; Pauly, P. Endobiogeny: A Global Approach to Systems Biology (Part 2 of 2). Glob. Adv. Health Med. 2013, 2, 32–44. <https://doi.org/10.7453/gahmj.2013.013>.
23. Hedayat, K.M. The Theory of Endobiogeny: Biological Modeling Using Downstream Physiologic Output as Inference of Upstream Global System Regulation. J. Complex. Health Sci. 2020, 3, 1–8. <https://doi.org/10.21595/chs.2020.21072>.
28. Hedayat, K.M.; Chalvet, D.; Yang, M.; Golshan, S.; Allix-Beguec, C.; Beneteaud, S.; Schmit, T. Evolution of Modeled Cortisol Is Prognostic of Death in Hospitalized Patients With COVID-19 Syndrome. Front. Med. 2022, 9, 912678. <https://doi.org/10.3389/fmed.2022.912678>.

29. Braukyliene, R.; Hedayat, K.; Zajanckauskiene, L.; Jurenas, M.; Unikas, R.; Aldujeli, A.; Petrokas, O.; Zabiela, V.; Steponaviciute, R.; Vitkauskiene, A.; et al. Prognostic Value of Cortisol Index of Endobiogeny in Acute Myocardial Infarction Patients. *Medicina* 2021, 57, 602.
<https://doi.org/10.3390/medicina57060602>.

30. Hedayat, K.; Shuff, B.M.; Lapraz, J.-C.; Barsotti, T.; Golshan, S.; Hong, S.; Greenberg, B.; Mills, P.J. Genito-Thyroid Index: A Global Systems Approach to the Neutrophil-to-Lymphocyte Ratio According to the Theory of Endobiogeny Applied to Ambulatory Patients with Chronic Heart Failure. *J. Cardiol. Clin. Res.* 2017, 5, 1091.

31. Hedayat, K.M.; Lapraz, J.-C. A New Approach to Biological Modeling: Introduction to the Biology

39. Hedayat, K.M.; Lapraz, J.-C. The Theory of Endobiogeny. Volume 1, Global Systems Thinking and Biological Modeling for Clinical Medicine, 1st ed.; Academic Press: London, UK, 2019; ISBN 978-0-12-817326-8.

Science and Theory of Endobiogeny

Pasha MA, Hopp RJ, Habib N, Tang DD. Biomarkers in asthma, potential for therapeutic intervention. *J Asthma*. Jun 13 2024:1-16.

Link: <https://pubmed.ncbi.nlm.nih.gov/38805392/>

Significance: The authors cited our definition of biomarkers and their significance in human physiology.

Citation: Lapraz JC, Hedayat KM, Pauly P. Endobiogeny: a global approach to systems biology (part 2 of 2). *Global advances in health and medicine: improving healthcare outcomes worldwide*. Mar 2013;2(2):32-44. doi:10.7453/gahmj.2013.013

Link: <https://pubmed.ncbi.nlm.nih.gov/24416662/>

Clinical Endobiogeny

Uzunoglu E, Kalkanci A, Kilic E, et al. Bacterial and fungal communities in chronic rhinosinusitis with nasal polyps. *PloS one*. 2024;19(5):e0304634.

Link: <https://pubmed.ncbi.nlm.nih.gov/38820284/>

Summary

In this article, Professor Uzunoglu and colleagues evaluated the microbial patterns in chronic rhinosinusitis with nasal polyps. In defining dysbiosis, they cited our work in Chapter 6 (Disorders of Dysbiosis) in [*The Theory of Endobiogeny, volume 3*](#), pp. 77-100:

“Dysbiosis is defined as compositional or functional difference in the microbiome, compared to the microbiome of healthy population and may occur as decrease in beneficial microorganisms, increase in potential pathological microorganisms or decrease in total microbial diversity” p.2.

Abstract

Objective: Multiple inflammatory mechanisms dynamically interact in the development of chronic rhinosinusitis with nasal polyps (CRSwNP). Disruption of the relationship between host and environmental factors on the mucosal surface leads to the development of inflammation. Microorganisms constitute the most important part of environmental factors.

Methods: 28 volunteers (18 CRSwNP patients and 10 healthy individuals) were included in the study. Eight patients were recurrent nasal polyposis cases, and the remaining were primary cases. Swab samples were taken from the middle meatus under endoscopic examination from all participants. After DNA extraction, a library was created with the Swift Amplicon 16S + ITS kit and sequenced with Illumina Miseq. Sequence analysis was performed using QIIME, UNITE v8.2 database for ITS and Silva v138 for 16S rRNA.

Results: The predominant bacteria in all groups were Firmicutes, Proteobacteria, Actinobacteria as phyla and Staphylococcus, Corynebacterium, Sphingomonas as genera. Comparison of bacterial communities of CRSwNP patients and control group highlighted Corynebacterium, as the differentiating taxa for control group and Streptococcus, Moraxella, Rothia, Micrococcus, Gemella, and Prevotella for CRSwNP patients. The predominant fungal genus in all groups was Malassezia. Staphylococcus; showed a statistically significant negative correlation with Dolosigranulum. Corynebacterium had a positive correlation with Anaerococcus, and a negative correlation with Neisseria, Prevotella, Fusobacterium and Peptostreptococcus.

Conclusion: Nasal microbiome of CRSwNP patients shows greater inter-individual variation than the control group. Corynebacterium is less abundant in patients with CRSwNP compared to the control group. Malassezia is the predominant fungus in the nasal cavity and paranasal sinuses and correlates positively with the abundance of Corynebacterium.