

SHORT THESIS FOR THE DEGREE OF DOCTOR OF PHILOSOPHY (Ph.D.)

**PHENOMENOLOGY AND PSYCHOSOMATICS:
A JUNGIAN AND POST-JUNGIAN APPROACH**

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AIMS AND SUBJECT MATTER OF THE DISSERTATION

In this work, I will attempt to characterize the major philosophical aspects of the psychosomatic phenomenon by means of the tools of contemporary phenomenology and analytical psychology. First and foremost, a historical review about the complicated matters of consciousness studies will be performed. The aim of this review is to clarify the context of unnecessary circles of thought, therefore I will strictly focus on two philosophical traditions of the modern era concerning the mind-body problem: 1) the Cartesian philosophy and interpretators of Descartes, and 2) the approach of Leibniz, and its critique by Kant and Schopenhauer. This will hopefully lead to a comprehensible presentation of the topic in a contemporary context of consciousness studies. On the other hand, I will also use some of the basic concepts of the phenomenological tradition – focusing on Husserl's and Merleau-Ponty's phenomenology – to outline the major features of embodied cognition, and will also apply modern scientific-philosophical theories (e.g. Gallagher's and Thompson's works) to create a context for further examinations. These further examinations will include a succinct philosophical critique of modern neuroscience, cognitive psychology, and reductionist approaches in general.

For a further theoretical survey of psychosomatic experiences, the depth psychological and the diverse transpersonal framework appears to be relevant. Thus far, the main contextual dilemma within this field has been the contradiction that emerges between the universal and the relativistic approaches, that is the main battlefield of contemporary postmodern critique. According to the postmodern movement of deconstructionism, the archetypal symbols and images are not the essential forms of the unconscious. The mythological themes and/or archetypal images are only certain features of a specific culture, there are no universal forms or the expressions of transpersonal realm (i.e. the “objective psyche” in Jungian terms). For some of the contemporary scholars, it is merely a metaphysical speculation to preserve the concept of an unhistorical universal mind, which exists without concrete situatedness. The images (the products of imagination and archetypal images) are not just “historic constructions” or “universal essences” in the universal mind, rather some kinds of “bridges”, expressions of the trans-objective and trans-subjective unknown. This dynamism may provide us with a bridge to the unknown depths or heights of the psyche. This process also has the remarkable capability to induce a spontaneous phenomenological reduction. In this context, the main feature of the ego-Self axis communication-mediated experiences is not the

awfulness that typically appears in the observer, rather the capacity to uphold a spontaneous “phenomenological reduction”. The traditional phenomenological investigation begins with the reduction. In Husserlian phenomenology the aim of the reduction is to “peel off” the ontological commitments, the cultural schemas from the observer’s mind (which is but a merely ideal goal), and to enjoy and scrutinize the lively actual experience in its full-blown richness. According to this, in the second part of this work, the attempted philosophical methodology will include the maintenance of continuous phenomenal reduction in order to transcend the basic assumptions about perception and body schema within the context of psychosomatic phenomena. The main thesis of this part is the idea that the actual researches regarding the problems of psychointegration can be extended with the heuristic value of basic phenomenological concepts. In conclusion, the main purpose will be to show that Jung’s works and the late ontology of Merleau-Ponty and Husserl can be powerful explanatory tools to describe and specify the features of the psychosomatic phenomenon.

In the last part my goal will be to show the mutually enlightening relation of psychedelic states and Jungian psychology in philosophy and biomedicine. We can consider altered conscious states – including psychedelic ones – as results of a psychodynamic process regulated by the ego-Self axis. In this respect, Jung’s synchronicity, Reich’s body-oriented therapy, the mechanism of the placebo-response complex (as developed by Richard Kradin) and altered states of consciousness are in strong correlation. After showing that the working mechanism of placebo-response complex and psychedelic altered states are based on the self-regulatory role of the Jungian transcendent function, a general model of psychosomatics will be outlined that includes and integrates Jungian complex-psychology and modern embodiment theories. I will also hypothesize that altered conscious states can be understood as parts of an unique healing mechanism highly resembling to the psychosomatic features of nocebo/placebo-response complex with promising therapeutic potential in the treatment of various psychosomatic diseases when co-applied with embodiment-rooted approaches.

METHODS APPLIED IN THE DISSERTATION

Under appropriate conditions, altered states of consciousness, whether they are induced by psychoactive substances or other non-pharmacological methods, have been shown to have therapeutic potential in psychotherapy. These conditions involve the presence of a skilled and experienced leader (a therapist, shaman, etc.), and an adequate set and setting with the equal contribution of both therapist and patient. I may also be that psychedelic states do not only have therapeutic value in psychotherapy but may also be useful in the treatment of psychosomatic disorders, and may expand our knowledge about the underlying processes of the somatization phenomenon. Applying the Jungian framework of feeling-toned complexes, I hypothesize that altered states of consciousness might help to access and mobilize the placebo response complex in a controlled therapeutic setting leading to the amelioration of physical symptoms. This method would aim to create three scenarios: 1) mobilizing psychic energies via symbolic communication with the Self to initiate the activity of the placebo response complex, thus facilitating the healing of the body; 2) in psychedelic and interpersonal therapies specifically target a certain complex or complexes with repressed affective content(s) in order to „de-couple” the related, embodied somatic symptom(s); 3) eliminating the negative therapeutic reaction, or – in Kradin’s term – the *nocebo complex* via transgressing the habituated destructive (implicit) schemas and activating the pre-symbolic phase of self-soothing. This approach is called “Leibanalysis” here as it focuses on the experiential features of the *lived body* and its connection-interaction-dynamic relation with all the interior and exterior aspects of the ego-consciousness and ego-Self axis.

Psychoanalysis and phenomenology has already been compared by virtue of their explanatory potential and common epistemic grounding in the Leib experience. Although they seem antagonistic initially, both root in the Cartesian idea of “clear and distinct perception”, that is the essential transparency of consciousness as far as its experiential contents are concerned. Furthermore, Fuch suggested the Leib as “part” of the unconscious physically manifested through “body memory”, which may finely nuance the various niches of perception. In agreement with this, repressed unconscious contents – expressed as psychosomatic bodily symptoms – may be grasped by phenomenological analysis.

It is enticing to speculate that the activated affective and symbolic states, engendered by *e.g.* psychedelic experiences, show a way to the basic core of the collective unconscious (the *Imago Dei* or Self). This process then, by means of internal impulses from the Self, may

lead to the mobilization of the otherwise pathologically inactive placebo response complex. The activated placebo response complex subsequently exerts its restorative function on the physical body leading to the alleviation of symptoms. On the other hand, if a psychosomatic symptom is successfully identified as a result of a repressed affective content bound by a certain complex, communication with the Self through various therapeutic narratives or rituals may lead to the deconstruction of the complex and disappearance of bodily symptoms coupled to its energies. In both cases, *altered/psychedelic states have a pivotal role* in establishing a channel of communication between the Self and ego-consciousness.

It would not be a far-fetched idea that, in a proper therapeutic setting, mobilizing energies of the Self via an identified and characterized placebo-response complex may lead to the healing of the body. This may be of important therapeutic potential, as symbolic “restoration or reprogramming” of the psychosomatic integrity of the person through psychic images may involve a complete physical healing process. The recent discussions around psychedelic therapies may promise an accelerated process of disabling pathogenic complexes by means of restoration of the ego-Self communication axis. Furthermore, the theory of complexes and especially the placebo response complex could be a fruitful clinical model that gives a spiritually inclined but also scientific alternative to the therapist for interpreting the patients’ underworld journeys. In the model proposed in this work, altered states, such as breathing techniques, guided meditation, active imagination or especially psychedelic-enhanced psychotherapy, are identified as *methods which establish “passageways” between the ego-consciousness and the transcendental Self*. The Leib appears to be a window through which the process itself is *unfolded in the phenomenal field* allowing one to actively *perceive, modulate or manipulate this manifold psychosomatic dynamics*. In a possible therapeutic setting, with proper training, a therapist may be able to help the patient to reconnect with and liberate energy from long-repressed complexes or to activate the restorative placebo response complex. Naturally, this method raises several issues that require further strict, objective investigations and technical considerations.

So far, the whole mission of finding novel ways of healing in modern Western medicine has been illusory when the question of mind-body dualism has been addressed, particularly since the last century. Although seemingly heading towards a holistic understanding of the human phenomenon, Western medicine has long been known to vastly promote a reductionist-monist stance in terms of its epistemic approach and methodology. As a major Cartesian heritage, in modern science, the body is considered to be a biochemical machine, a possible object of analytic examination and manipulation, while the soul is

gradually losing its immaterial-metaphysical attributes and becoming the derivative of brain (bodily) processes. Interestingly, in the early stages of medical sciences, the objectification of the patient gave birth to a distinctive *epistemological dualism* where *direct observation* and *subjective cognition* form the dipole of knowing (Sullivan, 1986). According to the 19th century French physician Bichat, the body (i.e. physical examination, autopsy, etc.) must be the very basis of medical knowledge. Therefore, physical inspection has its absolute authority over the “patient’s subjective account of distress” that is “deemed unreliable and essentially irrelevant” as far as the final diagnosis is concerned, as Kirmayer puts it. This obvious split between the disease as an *anomaly of the physical body/Körper* and the inner, psychic representation or *experiential features of the disease* (emerging from the *lived body/Leib*) poses a tension in recent therapeutic approaches. A “true” psychosomatic therapy should therefore address, include and merge both the *private-phenomenological* and the *public-physical* aspects of the disease state, and focus on both while establishing a diagnosis and subsequently the possible ways of healing. As we have seen above, the “mixed etiology” of a psychosomatic disease necessarily entails both the inner/mental and the outer/bodily existential-experiential dimensions of the individual with all the family history, social background, cultural milieu, etc. which the person is embedded into. In summary, an ultimate therapeutic method would be essentially holistic by its nature, including as many aspects of the patient as possible, unifying the philosophical-phenomenological, social-psychological, and bodily-medical dimensions as well. This work was primarily intended to *stimulate discussions about psychosomatics* between different areas of expertise in order to gain novel insights into the topic of mind-body relations, as well as to bring up novel ideas about altered states of consciousness (within a chimera-context of philosophy, analytical psychology, and medicine) that may be added as small pieces to the greater picture of future phenomenology-inspired somatic therapies.

THESES OF THE DISSERTATION

The following theses are outlined in the work:

- 1) Altered states of consciousness including psychedelic states possess the potential to *restructure the phenomenal field* of the subject by *mobilizing and surfacing so far hidden or repressed unconscious contents*; these contents can then be analyzed by following the “phenomenological rules” of the genesis and transformation of symbols and thus can be subjected to further philosophical investigations;
- 2) These states are also frequently associated with the de-construction of the ego (“ego-death”) which is followed by a re-construction phase intrinsically regulated and controlled by *the transcendent function* (due to the classic Jungian and post-Jungian analytical psychology);
- 3) In psychedelic states, the *phenomenal lived body* exhibits a vast plasticity in terms of its experiential features and operative capacities; thus *I propose a feasible way of manipulating the Leib while in these states*.

This approach can be integrated into a novel type of psychosomatic model in which ASCs and the phenomenological method can serve as tools for a better understanding of mind-body relations and as a hybrid apparatus for novel body-oriented therapies in psychosomatics.

Human beings find themselves *embodied* in the world. This mode of existence has a unique *situatedness* in the life-world of the individual in as much as it involves the delicate and incredibly complex interactions of the body, self, and society. In order to be able to discuss about the body in psychosomatic medicine (including its philosophical and psychological implications), we need to take a short bypass on the field of medical anthropology. As Kirmayer showed, this discourse implies several different – nonetheless interacting – domains of the body: 1) most importantly the fact that we are *physical/biological beings* with a broad spectrum of environmental and social factors that are objective to our physiology; 2) the *phenomenological body* with its all sensory, affective, and subjective-experiential features; 3) the “material and political economic reality of bodies as objects and

agents of power and value (the body politic)". The quintessence of embodiment, as it appears in the works of Merleau-Ponty and his followers, is that all of these "bodies" are actually collaborate/interact as they were a single being so we merge and fall under the influence of our culture and social environment in our bodily structure and experience. Many contemporary experts point out that these aspects are frequently conflated so bodies or even subsystems (e.g. the immune system) of the body are filled up, saturated by, or possess a *specific agency*. This would inevitably entail – both in the Merleau-Pontian and Foucauldian sense – that bodies by having their own subjectivity and power can overtake the self. To my mind, for a successful outlining of the theoretical frame of a working psychosomatic model we may not need to consider the importance of this problem as it appears at the level of the human immune system (its agency, subjectivity, and contribution to the perceptions of the phenomenal lived body).

Blalock's and his colleagues' groundbreaking theory proposed that the immune system worked as a *sensory organ* ("sixth sense"). This theory is based on empirical data that unveiled a communication pathway between the immune system and the brain/neuroendocrine system. This communication may allow the formation of an "immunological self" with its own perceptual capacities as it has long been a dominant metaphor since Burnet. His 1941 monograph, *The Production of Antibodies*, is considered as a key publication in the history of immunology. In this work, Burnet introduced the theory of "self" and "non-self" in immunology as a major principle of discrimination that stands between endogenous (host) and external motifs of recognition. He considered the "self" as being determined during embryogenesis and as being the very fundament of discrimination as opposed to any exogenous (environmental) stimuli that can interact with receptors of immune cells. Recent scientific theories view cognition not only within the context of neural networks but also as a complex phenomenon, which is based on interactions between neural and immune cells and other factors, such as the intestinal microbiota. Moreover, this interactionist approach to embodied cognition has also been extended to the reciprocal action of individuals with the social world. This aspect of *social embodiment of cognition* is a relatively new field in philosophy and cognitive neuroscience, and has not been considered in immunology to date. However, this view points towards the direction of a *sociophysiology* of the immune system that merges ethnography, sociopsychological predispositions to certain illnesses, and many more fields. Here we need to address again the question of meaning and symbolization as being crucial in the psychosomatic translation of cultural-to-mental-to-physiological processes. This "metaphor theory" could help us to understand the means of the physiological

crystallization of interpersonal interactions and individual mental states, that is, *the process of somatization*. On the one hand, as Freud and Georg Groddeck suggested in the early 20s, illnesses usually possess a semantic component through which symptoms are expressed in the body, the “meaning of illness” that involves the widest sociocultural setting of the patient. On the other hand, Lyon points out to the pivotal role of the emotive-affective component in the mediation of social-psychological-to-physiological processes. This may lead to novel concepts that fuse both social structures and the lived body. However, this vastly complex frame of interacting systems would exceed the limitations of this dissertation, therefore, I focus on the process of *individual somatization* in this work.

According to modern theories, psychosomatic diseases – classic examples in the literature include asthma, colitis, arthritis, various forms of allergies, neurodermatitis, etc. – are considered as somatic expressions of repressed/suppressed mental contents or unrecognized neurotic or psychotic symptoms. Chronic psychological distress has also been associated with wound healing, regeneration, and disrupted modulation of immune responses: either excess functioning (such as chronic inflammations, allergies, autoimmune diseases) or immunosuppression (e.g. acute or recurrent infections, cancer, etc.). At the beginning of psychoanalysis, hysteria was the typical disorder/diagnosis where patients were suffering from psychosomatic symptoms. It was the psychosomatic phenomenon that so impressed Freud calling his attention to the clinical cases of Charcot, and to Breuer’s famous “talking cure”. Freud was a physician by training, and had a high regard for morphology and anatomy. As Kradin writes, taking a decisive and influential step, Freud recognized that “psyche had the capacity to disavow anatomic and physiological ‘facts’ in its production of the psychosomatic symptom. Indeed, it is in the nature of the psychosomatic symptom to defy logic, order, and form. For this reason, the psychosomaticist must be concerned *not with the anatomy of the body but with the elucidation of an ‘imaginal’ anatomy and its idiosyncratic and pathologized physiology*.” Likewise, Jung believed that psychoses were of psychosomatic origin, sometimes rooted in organic anomalies, but quite usually they were caused by the overwhelming invasion of unconscious imagery into the conscious mind. Thus, Jung asserted that the images that were torturing the psychotic patient should not be considered as merely apocryphal or imaginary, but image and the body were, somehow, intermixed in the psychosomatic phenomenon. The confusing experiences of the psychotic were indeed *subjectively real* and the imagery itself can be regarded as a *context from which meaning could be extracted*. In hallucinatory states, as discussed in *Part Two* of the dissertation, imaginal objects of the phenomenal field behave as if they were real (or even “more real than

real”). In Husserl and Merleau-Ponty, the experience of subjectivity is formed on the verge of the ego-cogito and transcendental self. However, in a wider psychological context, the definitive “I” requires a discrimination between the “self” and “non-self” that is a sort of “psychological separation”. In developmental psychology, the body image as a “vessel” is generated through multiple processes including the intersubjective dynamics of mother and infant. Cognition of the “interior” (e.g. lived experiences of heartbeat, breathing, posture, etc.) and the “exterior” (e.g. sensory cues) all contribute to buildup of self/non-self discrimination. Modern phenomenological accounts of the lived body also refer to this kind of “Leib-genesis” as fundamentally constitutive of the reference and subsystems of body-cognition later in adulthood (see Gallagher’s and Zahavi’s works). However, not all of the somatic events are actually symbolized in this manner. As mentioned above, Jung coined the term “subtle body” to refer to the *somatic unconscious* which can be understood as domain that contains subliminal perceptions and aspects of the Leib as well as the physical body itself. In my opinion, Kradin’s idea of the *imaginal body* is – at least – comparable with the Leib or rather an *alternative expression of the phenomenal lived body*. According to this – and referring to the characteristics of the placebo-response complex mentioned in the third main part of the dissertation – psychosomatic disorders are actually *manifestations of disturbances in the ego-Self axis*. Kradin explicitly asserts that “abnormalities in how the imaginal body develops are at the core of the psychosomatic disorders.” Through the presentation of her clinical cases, others (e.g. Sidoli) reached similar conclusions.

As above, psychosomatic symptoms (their appearance, symbolism, and other characteristics) are largely affected by the cultural environment of the subject merging the life-world (“flesh of the world”) and the “flesh of the body” with individual psychic structures in an act of symbolization. As I presumed in previous chapters, *the Leib serves as an interface or node through which this symbolization becomes possible and manipulable*. Thus I propose the idea of a novel approach which aims to ground its diagnosis and therapeutic interventions in the phenomenal lived body. I call this approach “Leibanalysis” here as it primarily focuses on the Leib: the very intersection of the bodily, psychic, and sociocultural aspects of the individual. The methodology of Leibanalysis differs from that of other similar approaches such as Daseinanalysis. Unlike psychoanalysis and Daseinanalysis, Leibanalysis does not stress the exclusive importance of psychic and/or social-psychological events in psychosomatics rather *harnesses the empirical power of phenomenology in combination with analytical psychological characterization of the subjective experience*. This way, Leibanalysis, as established on the ground of my previous theses (as in *Parts Two and Three*),

primarily accentuates the *bi-directional dynamics* and *malleable nature of the Leib* as far as psychosomatic signaling is concerned. As mentioned above, the Leib becomes “malleable, manipulable” in psychedelic states (or in other altered states of consciousness) allowing one to “reset” and correct disruptions of the ego-Self axis that may followed by somatic alterations (“healing”) through the associated phenomenon of psychointegration. Psychoanalytical and body-oriented therapies usually offer and use therapeutic engagements and environments grasping either the body or the “soul/mind/cognitive self” as the major reference point of their therapeutic process. Leibanalysis *does not want to claim itself a “therapy”* rather an *approach that – although may sprout future therapies – is, in essence, a field of discussion and a medium of general philosophical-psychological inquiry* concerning psychosomatics.



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List of publications related to the dissertation

Hungarian book chapter(s) (1)

1. Brys Z., Szirmai A., Takács S., Bokor P., Kis J.T., Petró V., **Szabó A.**: Kognitív irányultságú meditációs módszerek a medicina perifériáján.
In: Ki látott engem? Buda Béla 75. Szerk.: Spannraft Marcellina, Sepsi Enikő, Bagdy Emőke, Komlósi Piroksa, Grezsa Ferenc, L'Harmattan Kiadó, Budapest, 356-374, 2014. ISBN: 9789632368269

Hungarian scientific article(s) in Hungarian journal(s) (4)

2. Horváth L., **Szabó A.**: A fekete nap melankóliája és a Selbst dekonstrukciója - Posztstrukturalizmus és posztjungliánus pszichológia.
Magyar Fil. Szle. 59 (3), 103-120, 2015. ISSN: 0025-0090.
3. **Szabó A.**, Kazai A., Frecska E., Brys Z.: Pszichedelikumok és kvázi-pszichedelikumok a modern kutatások tükrében: Orvosi kannabisz, MDMA, szalvinorin A, ibogain és ayahuasca.
Neuropsychopharmacol. Hung. 17 (3), 120-128, 2015. ISSN: 1419-8711.
4. Horváth L., **Szabó A.**: Tükörneuronok és személyköziség a megtestesülésparadigmájában.
LAM - 23 (12), 629-634, 2013. ISSN: 0866-4811.
5. Horváth L., **Szabó A.**: Integratív tudatállapotok fenomenológiája: Az észlelés és fantázia határmezsgyéjén.
Magyar Fil. Szle. 56, 125-150, 2012. ISSN: 0025-0090.





Foreign language scientific article(s) in Hungarian journal(s) (1)

6. **Szabó, A.**: Psychoneuroimmunology and the embodied mind.
Legis Artis Med. 25 (10), 445-453, 2015. ISSN: 0688-4811.

Foreign language scientific article(s) in international journal(s) (2)

7. **Szabó, A.**: Psychedelics and Immunomodulation: Novel Approaches and Therapeutic Opportunities.
Front. Immunol. 6 (358), 1-11, 2015. EISSN: 1664-3224.
DOI: <http://dx.doi.org/10.3389/fimmu.2015.00358>
8. **Szabó, A.**, Rajnavölgyi, É.: The Brain-Immune-Gut Triangle: Innate immunity in psychiatric and neurological disorders.
Curr. Immunol. Rev. 9 (4), 241-248, 2013. ISSN: 1573-3955.

Non scientific journal article(s) (1)

9. **Szabó A.**: Egy (nagyon) rövid bevezető a tudat tudományába.
Szkholon. 6 (1), 92-104, 2008. ISSN: 1785-0479.
(Ismertetett mű : Susan Blackmore : Consciousness - A Very Short Introduction. New York : Oxford University Press, 2005,)

List of other publications

Hungarian book chapter(s) (2)

10. Horváth L., Kőműves S., **Szabó A.**: Halálközeli élmények fenomenológiája és medikalizációja.
In: A személy bioetikai kontextusa. Szerk.: Kőműves Sándor, Rózsa Erzsébet, Debreceni Egyetemi Kiadó Debrecen University Press, Debrecen, 259-309, 2013. ISBN: 9789633183212





11. **Szabó A.**: A tudományos szubkultúrák szerkezete.

In: Huszonöt Fennsík : a művészetektől a tudományokig. Szerk.: Valastyán Tamás,
Debreceni Egyetemi Kiadó Debrecen University Press, Debrecen, 324-344, 2011. ISBN:
9789633181003

Hungarian scientific article(s) in Hungarian journal(s) (1)

12. Frecska E., **Szabó A.**: Az endohallucinogén dimetil-triptamin lehetséges szerepe a szövetek regenerációjában.
Orvostovábbk. Szle. 20 (5), 10-16, 2013. ISSN: 1218-2583.

Foreign language scientific article(s) in Hungarian journal(s) (1)

13. Brys, Z., Pluhár, A., Kis, J.T., Buda, B., **Szabó, A.**: Network analysis of neurotransmitter related human kinase genes: Possible role of SRC, RAF1, PTK2B?
Neuropsychopharmacol Hung. 15 (3), 165-171, 2013. ISSN: 1419-8711.

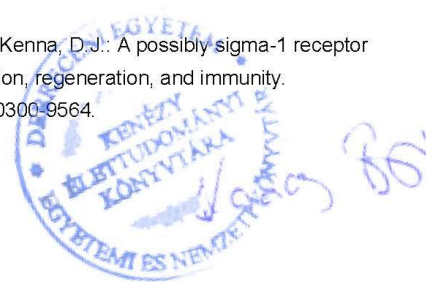
Foreign language scientific article(s) in international journal(s) (13)

14. Bacskai, I., Mázló, A., Kis-Tóth, K., **Szabó, A.**, Panyi, G., Sarkadi, B., Apáti, Á., Rajnavölgyi, É.: Mesenchymal stromal cell-like cells set the balance of stimulatory and inhibitory signals in monocyte-derived dendritic cells.
Stem Cells Dev. 24 (15), 1805-1816, 2015. ISSN: 1547-3287.
DOI: <http://dx.doi.org/10.1089/scd.2014.0509>
IF:3.727 (2014)
15. **Szabó, A.**, Magyarics, Z., Pázmándi, K., Gopcsa, L., Rajnavölgyi, É., Bácsi, A.: TLR ligands upregulate RIG-I expression in human plasmacytoid dendritic cells in a type I IFN-independent manner.
Immunol. Cell Biol. 92 (8), 671-678, 2014. ISSN: 0818-9641.
DOI: <http://dx.doi.org/10.1038/icb.2014.38>
IF:4.147





16. Pázmándi, K., Agod, Z., Kumar, B.V., **Szabó, A.**, Fekete, T., Sógor, V., Veres, Á., Boldogh, I., Rajnavölgyi, É., Lányi, Á., Bácsi, A.: Oxidative modification enhances the immunostimulatory effects of extracellular mitochondrial DNA on plasmacytoid dendritic cells.
Free Radic. Biol. Med. 77, 281-290, 2014. ISSN: 0891-5849.
DOI: <http://dx.doi.org/10.1016/j.freeradbiomed.2014.09.028>
IF:5.736
17. **Szabó, A.**, Kovács, A., Frecska, E., Rajnavölgyi, É.: Psychedelic N,N-Dimethyltryptamine and 5-Methoxy- N,N-Dimethyltryptamine Modulate Innate and Adaptive Inflammatory Responses through the Sigma-1 Receptor of Human Monocyte-Derived Dendritic Cells.
PLoS One 9 (8), 12 p., 2014. EISSN: 1932-6203.
DOI: <http://dx.doi.org/10.1371/journal.pone.0106533>
IF:3.234
18. Fekete, T., Pázmándi, K., **Szabó, A.**, Bácsi, A., Koncz, G., Rajnavölgyi, É.: The antiviral immune response in human conventional dendritic cells is controlled by the mammalian target of rapamycin.
J. Leukoc. Biol. 96, 1-11, 2014. ISSN: 0741-5400.
DOI: <http://dx.doi.org/10.1189/jlb.2A0114-048RR>
IF:4.289
19. **Szabó, A.**, Rajnavölgyi, É.: Finding a fairy in the forest:ELF4, a novel and critical element of type I interferon responses.
Cell. Mol. Immunol. 11 (3), 218-220, 2014. ISSN: 1672-7681.
DOI: <http://dx.doi.org/10.1038/cmi.2014.1>
IF:4.112
20. **Szabó, A.**, Rajnavölgyi, É.: Collaboration of Toll-like and RIG-I-like receptors in human dendritic cells: TRIGgering antiviral innate immune responses.
Am. J. Clin. Exp. Immunol. 2 (3), 195-207, 2013. EISSN: 2164-7712.
21. Frecska, E., **Szabó, A.**, Winkelman, M.J., Luna, L.E., McKenna, D.J.: A possibly sigma-1 receptor mediated role of dimethyltryptamine in tissue protection, regeneration, and immunity.
J. Neural Transm. 120 (9), 1295-1303, 2013. ISSN: 0300-9564.
DOI: <http://dx.doi.org/10.1007/s00702-013-1024-y>
IF:2.871





22. **Szabó, A.**, Gogolák, P., Pázmándi, K., Kis-Tóth, K., Riedl, K., Wizel, B., Lingnau, K., Bácsi, A., Réthi, B., Rajnavölgyi, É.: The Two-Component Adjuvant IC31(R) Boosts Type I Interferon Production of Human Monocyte-Derived Dendritic Cells via Ligation of Endosomal TLRs. *PLoS One*. 8 (2), 13 p., 2013. EISSN: 1932-6203.
DOI: <http://dx.doi.org/10.1371/journal.pone.0055264>
IF:3.534
23. **Szabó, A.**, Osman, R.M., Bacskai, I., Kumar, B.V., Agod, Z., Lányi, Á., Gogolák, P., Rajnavölgyi, É.: Temporally designed treatment of melanoma cells by ATRA and polyI. *Melanoma Res.* 22 (5), 351-361, 2012. ISSN: 0960-8931.
DOI: <http://dx.doi.org/10.1097/CMR.0b013e328357076c>
IF:2.518
24. **Szabó, A.**, Bene, K., Gogolák, P., Réthi, B., Lányi, Á., Jankovich, I., Dezső, B., Rajnavölgyi, É.: RLR-mediated production of interferon-beta by a human dendritic cell subset and its role in virus-specific immunity. *J. Leukoc. Biol.* 92 (1), 159-169, 2012. ISSN: 0741-5400.
DOI: <http://dx.doi.org/10.1189/jlb.0711360>
IF:4.568
25. Fekete, T., **Szabó, A.**, Beltrame, L., Vivar, N., Pivarcsi, A., Lányi, Á., Cavalieri, D., Rajnavölgyi, É., Réthi, B.: Constraints for monocyte-derived dendritic cell functions under inflammatory conditions. *Eur. J. Immunol.* 42 (2), 458-469, 2012. ISSN: 0014-2980.
DOI: <http://dx.doi.org/10.1002/eji.201141924>
IF:4.97
26. Benkő, S., Magyarics, Z., **Szabó, A.**, Rajnavölgyi, É.: Dendritic cell subtypes as primary targets of vaccines: The emerging role and cross-talk of pattern recognition receptors. *Biol. Chem.* 389 (5), 469-485, 2008. ISSN: 1431-6730.
DOI: <http://dx.doi.org/10.1515/BC.2008.054>
IF:3.035





Non scientific journal article(s) (1)

27. **Szabó, A.**, Kovács, A., Frecska, E., Rajnavölgyi, É.: Activation of the sigma-1 receptor by specific ligands inhibits human inflammatory dendritic cell functions and effector t-lymphocyte responses.

Alzheimer's & Dementia. 10 (4), P876, 2014. ISSN: 1552-5260.

DOI: <http://dx.doi.org/10.1016/j.jalz.2014.07.017>

Foreign language abstract(s) (2)

28. Pázmándi, K., Agod, Z., Kumar, B.V., **Szabó, A.**, Fekete, T., Sógor, V., Veres, Á., Boldogh, I., Rajnavölgyi, É., Lányi, Á., Bácsi, A.: Oxidative modification enhances the immunostimulatory effects of extracellular mitochondrial DNA.

Eur. J. Clin. Invest. 45 (2), 65, 2015. ISSN: 0014-2972.

29. Magyarics, Z., **Szabó, A.**, Pázmándi, K., Gopcsa, L., Bácsi, A., Rajnavölgyi, É.: Cytokine production and helicase expression of leukemic plasmacytoid dendritic cells.

Eur. J. Immunol. 39, S360, 2009. ISSN: 0014-2980.

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