

*Prof. Dr. Attila PATOCS, MD, MSc, PhD, DSc*  
*Curriculum Vitae as of June 6, 2024*

## Contact

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## Brief bio sketch

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Currently he is the Clinical Director of National Institute of Oncology and Head of Department of Molecular Genetics and Clinical Laboratory at National Institute of Oncology and Head of Hereditary Tumors Research Group Hungarian Academy of Sciences. Formerly, he was Head of Endocrine Genetics Laboratory at Semmelweis University and Head of MTA-SE “Momentum” Hereditary Endocrine Tumors Research Group as well. His research activities engage in various topics such as: genetic background of pituitary and adrenal tumors, glucocorticoid resistance and hereditary endocrine tumor syndromes. Furthermore, mitochondrial tumor suppressor genes and their roles in the pathogenesis of tumors and the role of microRNAs in the pathogenesis of pituitary and adrenal tumors.

Prof. Attila PATOCS graduated in General Medicine from Semmelweis University in Hungary (**MD, 1998**). Afterwards, he earned a degree as a biological engineer from the Technical University of Budapest (**MSc, 2000**). Later on, he completed his **PhD** at Semmelweis University Doctoral School, where he was an associate professor between 2008-2019. **DSc** degree was received in 2018 from Hungarian Academy of Sciences. Moreover, he spent 18 months in Genomic Medicine Institute Cleveland Clinic, Lerner Research Institute as post-doctoral fellow. Additionally, he received a Board Certification in Laboratory Medicine (2008), Molecular Genetic Diagnostics (2010) and Laboratory Genetic Diagnostics (2023). He has won several merit awards from Semmelweis University and two Bolyai János fellowship awards. In 2024 he was awarded with the Academic Price (Hungarian Academy of Sciences)

He has published over 240 scientific publications, with IF over 920, and has over 6000 citations. At present, he holds leadership positions of three Hungarian Societies: *Secretary* of the Hungarian von Hippel-Lindau Society, *Executive Committee Member* and *Secretary* of the Hungarian Society for Oncologists, and *President* of Hungarian Society of Genetics and Genomics.

Moreover, he acts as Principal Investigator for five ongoing grants (*Beyond 1 Million Genome (BIMG) project; EHDS2 Pilot - A European Consortium Pilot project; PCM4EU Personalised*

*Cancer Medicine for all EU citizens; Hungarian Academy of Sciences, MTA-SE - HAS-SE Hereditary Tumours Research group; National Tumorbiology Laboratory).*

## **Relevant international experience in research consortia, evaluation, committees or related activities**

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### **Memberships and functions:**

1. Executive Committee Member of the Endocrine Society, Training and Career Development Core Committee (2012-2015)
2. Executive Committee Member of the Hungarian Society for Endocrinology and Metabolism, 2011- present
3. Executive Committee Member of the Hungarian Society for Laboratory Medicine 2011-2015
4. Executive Committee Member of the Hungarian Society of Humangenetics, 2011-2016
5. Hungarian von Hippel-Lindau Society, secretary, 2008-2023
6. Co-chair of Endocrine Reference Network (ENDO-ERN) Genetic tumours syndromes working group (2016-2023)
7. Focus area lead Adrenal and Neuroendocrine Tumours, European Society of Endocrinology 2017-2019
8. Executive Committee Member of the Hungarian Cancer Society, 2019- present
9. ***Secretary of the Hungarian Cancer Society, 2021- present***
10. ***President, Hungarian Society of Genetics and Genomics (2023-2025)***

### **Grants as Principal Investigator:**

1. Office of National Research Development, OTKA NNF77756: Role of the glucocorticoid receptor isoforms in the pathogenesis of adrenocortical tumors, 2009-2011 (sum: 16.418.000 HUF)
2. ETT 040/2009: Genetics and epigenetics of pituitary tumors, 2009-2012 (sum 4.500.000 HUF)
3. Office of National Research Development, OTKA PD100648: Genetic and epigenetic alterations in tumours of endocrine system (sum: 11 931 000 HUF).
4. Hungarian Academy of Sciences, MTA-SE “Lendület” grant, 2013-2018, (250 000 000 HUF), set up an independent research group, HAS-SE “Momentum” Hereditary Endocrine Tumours Research group
5. National Research, Development and Innovation Agency, Medical Bionics Project leader and coordinator, Bionics Innovation Center, Budapest (2014-2020)
6. National Research, Development and Innovation Agency project K125231 Novel biomarkers for diagnosis and prognosis of adrenal tumors (2017-2022)
7. Hungarian Academy of Sciences, MTA-SE, 2019-2024, (140 000 000 HUF), set up an independent research group, HAS-SE Hereditary Tumours Research group
8. ***Beyond 1 Million Genome (BIMG) project*** (<https://b1mg-project.eu/>, national coordinator, 2019-2023)
9. National Tumorbiology Laboratory (National Institute of Oncology, co-investigator, 2021-2026)
10. ***EHDS2 Pilot - A European Consortium Pilot project***, candidate for the future European Health Data Space (participant, 2022-2024)
11. ***PCM4EU Personalised Cancer Medicine for all EU citizens***, national representative (2023-2025)

12. *GDI (Genomic Data Infrastructure)* project; national representative (2023-2027)

### **Fellowships and awards:**

2005 (6 month): Endocrine Society International Scholarship program, postdoctoral fellowship at Ohio State University Comprehensive Cancer Centrum

2005-2007 (18 month): postdoctoral fellowship; Cleveland Clinic, Lerner Research Institute Genomic Medicine Institute

2008: Bolyai János Research Fellowship (2008-2011)

2009: Travel award Hungarian Academy of Sciences

2012: Bolyai János Research Fellowship (2012-2015)

2013: Merit award Semmelweis University

2015: Jendrassik award Semmelweis University

2016: Merit award Semmelweis University

2017: Merit award Semmelweis University

2024: Academy Prize (Hungarian Academy of Sciences)

### **10 most-relevant peer-reviewed publications in the past 5 years**

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1. Butz H, **Patócs A**. Mechanisms behind context-dependent role of glucocorticoids in breast cancer progression. **Cancer Metastasis Rev.** 2022 Jun 27. doi: 10.1007/s10555-022-10047-1.
2. Butz H, Lövey J, Szentkereszty M, Bozsik A, Tóth E, **Patócs A**. Case Report: A Novel Pathomechanism in PEComa by the Loss of Heterozygosity of *TP53*. **Front Oncol.** 2022 Mar 28;12:849004.
3. Sarkadi B, Saskoi E, Butz H, **Patocs A**. Genetics of Pheochromocytomas and Paragangliomas Determine the Therapeutical Approach. **Int J Mol Sci.** 2022 Jan 27;23(3):1450
4. Sarkadi B, Liko I, Nyiro G, Igaz P, Butz H, **Patocs A**. Analytical Performance of NGS-Based Molecular Genetic Tests Used in the Diagnostic Workflow of Pheochromocytoma/Paraganglioma. **Cancers (Basel).** 2021 Aug 22;13(16):4219. PMID: 34439371
5. Butz, Henriett ; Nyíró, Gábor ; Kurucz, Petra Anna ; Likó, István ; **Patócs, Attila** Molecular genetic diagnostics of hypogonadotropic hypogonadism: from panel design towards result interpretation in clinical practice **HUMAN GENETICS** 140 : 1 pp. 113-134. , 22 p. (2021)
6. Sarkadi, Balazs ; Meszaros, Katalin ; Krencz, Ildiko ; Canu, Letizia ; Krokker, Lilla ; Zakarias, Sara ; Barna, Gabor ; Sebestyen, Anna ; Papay, Judit ; Hujber, Zoltan, Butz Henriett, Darvasi Otto, Igaz Peter, Doczi Judit, Luconi Michaela, Chinopoulos Christos, **Patocs Attila** Glutaminases as a Novel Target for SDHB-Associated Pheochromocytomas/Paragangliomas **CANCERS** 12 : 3 Paper: 599 , 25 p. (2020)
7. Saskői É, Hujber Z, Nyíró G, Likó I, Mátyási B, Petővári G, Mészáros K, Kovács AL, Patthy L, Supekar S, Fan H, Sváb G, Tretter L, Sarkar A, Nazir A, Sebestyén A, **Patócs A**, Mehta A, Takács-Vellai K. The SDHB Arg230His mutation causing familial paraganglioma alters glycolysis in a new *Caenorhabditis elegans* model. **Dis Model Mech.** 2020 Oct 15;13(10):dmm044925. PMID: 32859697
8. Kövesdi A, Kurucz PA, Nyíró G, Darvasi O, **Patócs A**, Butz H. Circulating miRNA Increases the Diagnostic Accuracy of Chromogranin A in Metastatic Pancreatic Neuroendocrine Tumors. **Cancers (Basel).** 2020 Sep 2;12(9):2488.
9. Grolmusz, VK ; Kövesdi, A ; Borka, K ; Igaz, P ; **Patócs, A** Prognostic relevance of proliferation-related miRNAs in pancreatic neuroendocrine neoplasms **EUROPEAN JOURNAL OF ENDOCRINOLOGY** 179 : 4 pp. 219-228. , 10 p. (2018)
10. Tretter L, **Patocs A**, Chinopoulos C. Succinate, an intermediate in metabolism, signal transduction, ROS, hypoxia, and tumorigenesis. **Biochim Biophys Acta.** 2016 Aug;1857(8):1086-1101. 10.PMID: 26971832

## 10 most-relevant peer-reviewed publications

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1. **Patocs, A** ; Zhang, L ; Xu, Y ; Weber, F ; Caldes, T ; Mutter, GL ; Platzer, P ; Eng, C: Breast-Cancer Stromal Cells with TP53 Mutations and Nodal Metastases **NEW ENGLAND JOURNAL OF MEDICINE** 357 : 25 pp. 2543-2551. , 9 p. (2007)
2. Tretter, L ✉ ; **Patocs, A** ; Chinopoulos, C: Succinate, an intermediate in metabolism, signal transduction, ROS, hypoxia, and tumorigenesis. **BIOCHIMICA ET BIOPHYSICA ACTA-BIOENERGETICS** 1857 : 8 pp. 1086-1101. , 16 p. (2016)
3. Butz, H ; Rácz, K ; Hunyady, L ; **Patócs, A**: Crosstalk between TGF- $\beta$  signaling and the microRNA machinery **TRENDS IN PHARMACOLOGICAL SCIENCES** 33 : 7 pp. 382-393. , 12 p. (2012)
4. Ni, Y ; Zbuk, KM ; Sadler, T ; **Patocs, A** ; Lobo, G ; Edelman, E ; Platzer, P ; Orloff, MS ; Waite, KA ; Eng, C: Germline mutations and variants in the succinate dehydrogenase genes in Cowden and Cowden-like syndromes **AMERICAN JOURNAL OF HUMAN GENETICS** 83 : 2 pp. 261-268. , 8 p. (2008)
5. Butz, H ; Likó, I ; Czirják, S ; Igaz, P ; Khan, MM ; Zivkovic, V ; Bálint, K ; Korbonits, M ; Rácz, K ; **Patócs, A**: Down-regulation of Wee1 kinase by a specific subset of microRNA in human sporadic pituitary adenomas. **JOURNAL OF CLINICAL ENDOCRINOLOGY AND METABOLISM** 95 : 10 pp. E181-E191. (2010)
6. **Patócs, A** ; Tóth, M ; Barta, CS ; Sasvári-Székely, M ; Varga, I ; Szűcs, N ; Jakab, CS ; Gláz, E ; Rácz, K ✉ Hormonal evaluation and mutation screening for steroid 21-hydroxylase deficiency in patients with unilateral and bilateral adrenal incidentalomas **EUROPEAN JOURNAL OF ENDOCRINOLOGY** 147 : 3 pp. 349-355. , 7 p. (2002)
7. Grolmusz, Vince Kornél ; Karászi, Katalin ; Micsik, Tamás ; Tóth, Eszter Angéla ; Mészáros, Katalin ; Karvaly, Gellért ; Barna, Gábor ; Szabó, Péter Márton ; Baghy, Kornélia ; Matkó, János, **Patócs Attila**. Cell cycle dependent RRM2 may serve as proliferation marker and pharmaceutical target in adrenocortical cancer **AMERICAN JOURNAL OF CANCER RESEARCH** 6 : 9 pp. 2041-2053. , 13 p. (2016)
8. Grolmusz, VK ; Kövesdi, A ; Borka, K ; Igaz, P ; **Patócs, A** Prognostic relevance of proliferation-related miRNAs in pancreatic neuroendocrine neoplasms **EUROPEAN JOURNAL OF ENDOCRINOLOGY** 179 : 4 pp. 219-228. , 10 p. (2018)
9. Butz, Henriett ; Nyírő, Gábor ; Kurucz, Petra Anna ; Likó, István ; **Patócs, Attila** ✉ Molecular genetic diagnostics of hypogonadotropic hypogonadism: from panel design towards result interpretation in clinical practice **HUMAN GENETICS** 140 : 1 pp. 113-134. , 22 p. (2021)
10. Sarkadi, Balazs ; Meszaros, Katalin ; Krencz, Ildiko ; Canu, Letizia ; Krokker, Lilla ; Zakarias, Sara ; Barna, Gabor ; Sebestyen, Anna ; Papay, Judit ; Hujber, Zoltan ; Butz Henriett, Darvasi Otto, Igaz Peter, Doczi Judit, Luconi Michaela, Chinopoulos Christos, **Patocs Attila** Glutaminases as a Novel Target for SDHB-Associated Pheochromocytomas/Paragangliomas **CANCERS** 12 : 3 Paper: 599 , 25 p. (2020)

### Summary of publication activity

<https://vm.mtmt.hu/search/slist.php?lang=0&top10=0&AuthorID=10001006>

Impact factor of papers: approx. 920

Number of citations: approx. 6000

Books (Editor): 2

Book chapters: 8

Publications: 247

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prof. dr. Attila Patocs