

Curriculum Vitae

Attila Ambrus, Ph.D.

Education:

- Secondary School Erdey-Grúz Tibor Chemical Technical College, Debrecen, Hungary, 1987-1991
- M.Sc. *Chemist, Diploma work: Ligand exchange kinetics of HCN and $\text{Ti}(\text{EDTA})\text{CN}^{2-}$ by Dynamic ^{205}Tl and ^{13}C NMR Spectroscopy, supervisor: Prof. István Bányai, Dept. of Physical Chemistry, Kossuth Lajos University, Debrecen, Hungary, 1991-1996*
- M.A. *English-Hungarian Vocational Translator in Chemistry, Kossuth Lajos University, Debrecen, Hungary, 1991-1996*
- M.A. *High School Chemistry Teacher, Kossuth Lajos University, Debrecen, Hungary, 1993-1998*
- Advanced Certificate *The Principles of Protein Structure (accredited 1-year course), University of London, Birkbeck College, London, UK, 1996-1997, with scholarship from the George Soros Foundation*
- Ph.D. *Structural Biochemistry, Department of Biochemistry and Molecular Biology, University of Debrecen, Debrecen, Hungary, 1996-2001, supervisor: Prof. László Fésüs, summa cum laude, thesis: Structural investigation of transglutaminases*
- Habilitation degree June 30, 2022 (scientific colloquium: maximum points from the 7 committee members)
- Doctor of Science (D.Sc.) degree (Hungarian Academy of Sciences) June, 2022 (overall merit assessment: 88%, defense: 92%)
- Language proficiency mother tongue: *Hungarian*
Russian: 10 years of study, state exam of Hungary (basic level, type C)
English: 14 years of study, state exam of Hungary (advanced level [highest level in Hungary], type C), M.A. degree in English language, 5 years of employment in the USA
- Computer skills *Computer operator certificate (1997, Kossuth Lajos University, basic level)*

Post-doctoral positions:

University of Arizona, Department of Biochemistry and Molecular Biophysics, Tucson, AZ, USA, 2001-2002, *advisor: Prof. William R. Montfort*

University of Arizona, Department of Pharmacology and Toxicology, Tucson, AZ, USA, 2003-2006, *advisors: Prof. Danzhou Yang/Prof. Laurence Hurley*

Faculty positions:

University of Debrecen, Department of Biochemistry and Molecular Biology, Debrecen, Hungary, Research Associate and Lecturer, 2000-2003

Semmelweis University, Department of Medical Biochemistry, Budapest, Hungary, Research Associate and Lecturer, 2006-2011

Semmelweis University, Department of Medical Biochemistry, Assistant Professor, 2011-2019

Hungarian Academy of Sciences, Budapest, Hungary, Senior Research Fellow, 2017-2019

Semmelweis University, Department of Medical Biochemistry, Associate Professor, 2019-present

Semmelweis University, Department of Medical Biochemistry, Laboratory for Molecular Enzymology, Head of Laboratory, 2006-present (supported by own grants/scholarships/fellowships and grants by Prof. Vera Adam-Vizi)

Teaching responsibilities:

Inorganic Chemistry Erdey-Grúz Tibor Chemical Technical College, Debrecen, Hungary (6-month teaching practice), 1998

Medical Biochemistry Medical Biochemistry I-II, practice group leader in Hungarian and English, University of Debrecen, Faculty of Medicine, Debrecen, Hungary, 1997-2000

Medical Biochemistry I, seminar/practice group leader in Hungarian and English, Semmelweis University, Faculties of Medicine and Dentistry, Budapest, Hungary, 2006-2016

Medical Biochemistry I (new curriculum), seminar/practice group leader in Hungarian and English, Semmelweis University, Faculties of Medicine and Dentistry, Budapest, Hungary, 2017-

Dental Biochemistry II, lecturer in Hungarian, Semmelweis University, Faculty of Dentistry, Budapest, Hungary, 2018-2019

Medical Chemistry practice group leader in Hungarian and English and lecturer in English, Semmelweis University, Budapest, Hungary, 2006-2016; 2020- (practice only)

Basics of Medical Chemistry lecturer in English, Semmelweis University, Budapest, Hungary, 2009-2016

Biochemistry Biochemistry I-II, lecturer in Hungarian and English, Semmelweis University, Faculty of Pharmacy, Budapest, Hungary, 2011-

Ph.D. courses Biochemistry of Apoptosis, 1 lecture, University of Debrecen, 2000

Principles in Drug Discovery, Design, and Development, 1 lecture, University of Arizona, 2004

Neurochemistry, 1 lecture, Semmelweis University, 2006

Structural Biology, course leader and lecturer for 4 lectures, Semmelweis University, 2008

Molecular Enzymology, course leader at Semmelweis University, lecturer: Prof. Frank Jordan, Rutgers University, USA, 2011

Undergraduate student researchers:

Zoltán Klimaj (2008–2010), Mattias Nilsson (2008–2013; Students' Research Conference: II. Prize - 2010), Mária Kozma (2008; High School Research Competition with topic from the lab: national III. prize - 2007), Tommy Ivanics (2009–2010), Krisztina Trimmel (2011), Zsuzsanna Zenkő Réti (2011), Daniel Oren (2014-2016), Gareth Ogdon (2014-2014), Omer Shpack (2014-2016), Zsófia Zámbo (2014-2016), Jeremiah Thomas (2015-2017), Dávid Bui (2016-2017), Marcell Sinkalovics (2018-2019), Réka Nonn (2019-2020), Nagy Adrienn (2019-2022), Wittinger Soma Attila (2019-2022), Krisztina Rubina Vass (2020-2022), Eszter Zrupkó (2020-), Anna Franciska Tóth (2020-2022), Gu Yibo (2021-)

B.Sc./M.Sc. thesis:

Mattias Nilsson, 2013; Zsófia Zámbo, 2016; Jeremiah Thomas, 2017; Krisztina Rubina Vass, 2019/2022; Soma Attila Wittinger, 2022; Adrienn Nagy, 2022; Anna Franciska Tóth, 2022; Lara Paba, 2022

Post-docs:

Dr. Ágnes Hubert (2015-2017); Dr. Olivér Ozohanics (2018-); Dr. Eszter Szabó (2020-)

Guidance of Ph.D. graduate students at the University of Arizona:

Clifford Whatcott (2-month rotation, 2004), Justin Dietrich (3-month rotation, 2005), Ding Chen (Ph.D. project supervision, 2003-2006), Tiffanie Bialis (NMR project supervision, 2004-2006)

Ph.D. graduate students at Semmelweis University:

Dr. Eszter Szabó (2015-2020), Dr. Bálint Nagy (2015-), Zsófia Zámbo (2016-), Réka Mizsei (2014-2021, now at Laboratory of Immunobiology, Dana-Farber Cancer Institute, Boston, USA), Éva Nemes-Nikodém (2018- , co-supervision with Prof. László Tretter)

Other past and present responsibilities at Semmelweis University:

Course Leader of Biochemistry I-II (Hungarian/German/English courses) in the Faculty of Pharmacy at Semmelweis University (2011–present)

Internal ISO auditor at the Department of Medical Biochemistry (2007–2011)

Head of Instrument Control at the Department of Medical Biochemistry (2007–2013)

Decorations, honors, and grants (where PI):

15th place (finalist) of Hungary in National High School Competition in Chemistry (OKTV), 1991

9th place (finalist) of Hungary in National Chemical Technical Colleges Competition (OSZTV), 1991

George Soros Scholarship, 1996-1997

János Bolyai Research Fellowship, Hungarian Academy of Sciences, 2006-2009 and 2011-2014

Young Investigator Research Grant, Gedeon Richter Pharmaceutical Plc., 1 M HUF, 2007-2008

IUBMB-Sigma-Aldrich Travel Award, 10th IUBMB Conference, Salvador da Bahia, Brazil, 2007

Young Investigator Research Grant, Semmelweis University, 3 M HUF, 2008-2009

Bolyai Plaque, Hungarian Academy of Sciences, 2010

EMBO Short-term Fellowship, 1 month, Univ. of Pittsburgh, PA, USA, 2011

Finn Wold Travel Award, IX. European Symposium of Protein Society, Stockholm, Sweden, 2011

Fulbright Fellowship, 3 months, Rutgers University, Newark, NJ, USA, 2012

Occasional Lecturer Fund, Fulbright Commission, 2012

MedInProt Grant (co-PI), Hungarian Academy of Sciences, 9.32 M HUF, 2015

Erasmus Grant, 2 weeks, Helmholtz-Zentrum Berlin, Germany, 2015

Erasmus+ Grant, 5+5 months/2+2 weeks, Rutgers University, Newark, NJ, USA, 2016-2018

Merit Prize (science section), Semmelweis University, 2016
European Union's Horizon 2020 Research and Innovation Programme grant (synchrotron beamtime grant, BESSY II synchrotron, Helmholtz Zentrum Berlin, granted four times for a half, half, full year, and full year period, respectively: 2018, 2019, 2020, 2021), Berlin, Germany (2400, 800, 4800, 4800 Euros)
Erasmus+ Grant, 60+60+10 days mobilities, Rutgers University, Newark, NJ, USA, 2018-2020
Merit Prize (science section), Semmelweis University, 2019
Higher Education Institution Excellence Program Grant, Neurology Section (FIKP), Ministry of Human Capacities of Hungary, 9.5 M HUF, 2019-2020
Research support of the Dept. of Medical Biochemistry, Semmelweis University, 2 M HUF, 2019
Research support of Lev Therapeutics (Westport, CT, USA), 30000 USD, 2020-2021
Research support of Cyclica, Inc. (Toronto, Canada, COVID-19 Stimulus Plan), 20000 USD, 2020
Research Excellence Grant, Ministry of Human Capacities of Hungary, 9,5 M HUF, 2020-2021
Research Excellence Grant, Ministry of Human Capacities of Hungary, 7,5 M HUF per year, 2021-2025
iNEXT-Discovery Grant (to Helmholtz-Zentrum Berlin, BESSY II synchrotron, Berlin, Germany), 2022
STIA-OTKA-2021 Grant, Semmelweis University, 9,98 M HUF, 2022
iNEXT-Discovery Grant (for cryo-EM in CEITEC, Brno, Czech Republic), 2022

Study trips:

Torvergata University, Rome, Italy, 2 weeks, 1997
Institute of Molecular Biotechnology, Jena, Germany, 1 month, 1998
University of Ferrara, Ferrara, Italy, 2 weeks, 1998
NMR laboratory, University of Debrecen, Debrecen, Hungary, 1999-2000
University of Arizona, Department of Chemistry, Tucson, AZ, USA, 8 months, 2000-2001
Stanford Synchrotron Radiation Laboratory, Menlo Park, CA, USA, 3 days, 2002
West Coast Bruker Headquarter, San Francisco/Fremont, CA, USA, 6 days, 2003
Bruker BioSpin West Coast Regional Users Meeting, San Diego, CA, USA, 2 days, 2005
University of New Castle upon Tyne, MRI Center, New Castle, UK, 2 days, 2008
Swedish NMR Centre, University of Gothenburg, Gothenburg, Sweden, 4 days, 2010
Bruker BioSpin AG, Fällanden/Zürich, Switzerland, 3 days, 2010
University of Pittsburgh, Pittsburgh, PA, USA, 1 month, 2011
Advanced Photon Source (APS) at Argonne National Laboratory, Chicago, IL, USA, 3 days, 2011
Rutgers University, Department of Chemistry, Newark, NJ, USA, 3 months, 2012
Helmholtz-Zentrum Berlin, Germany, 2 weeks, 2015
Rutgers University, Department of Chemistry, Newark, NJ, USA, 1 week, 2017
University of Arizona, Department of Chemistry and Biochemistry, Tucson, AZ, USA, 2 weeks, 2017
University of Arizona, Department of Chemistry and Biochemistry, Tucson, AZ, USA, 3 weeks, 2018

Selected posters (of >40 posters; first-authored: (F), co-authored: (C); last-authored: (L)):

Sixth International Transglutaminase Conference, Lyon, France, 2000 (F)
19th International Conference on Magnetic Resonance in Biological Systems, Florence, Italy, 2000 (C)
Annual meeting of the American Crystallographic Association, San Antonio, TX, USA, 2002 (C)
16th Symposium of the Protein Society, San Diego, CA, USA, 2002 (C)
Frontiers in Biomedical Research Forum, Tucson, AZ, USA, 2004, 2005, 2 posters in 2006 (2F, 2C)
Gordon Conference, Molecular Therapeutics of Cancer, New London, NH, USA, 2005 (C)
97th AACR Annual Meeting, Washington DC, USA, 2006 (C)
47th ENC, Pacific Grove, CA, USA, 2006 (C)
10th IUBMB Conference, Salvador da Bahia, Brazil, 2007 (F)

9th ICBEM Conference, Budapest, Hungary, 2010 (F)
 16th European Bioenergetics Conference (EBEC) Conference, Warsaw, Poland, 2010 (F)
 IX. European Symposium of the Protein Society, Stockholm, Sweden, 2011 (F)
 Trends in Biomolecular Structure: from Chemistry to Function, Ljubljana, Slovenia, 2013 (F)
 IBRO Workshop 2014, Debrecen, Hungary, 2014 (F)
 19th EBEC Conference, Riva del Garda, Italy, 2016 (2L)
 30th Anniversary Symposium of the Protein Society, Baltimore, MA, USA, 2016 (L)
 SMARTER 5 Conference, Bayreuth, Germany, 2016 (L)
 Understanding Biology Through Structure Conference, Santa Fe, NM, USA, 2017 (L)
 2nd Annual World Preclinical Congress Europe, Lisbon, Portugal, 2017 (L)
 9th Joint BER II and BESSY II User Meeting, Helmholtz Zentrum Berlin, Berlin, Germany, 2017 (L)
 20th EBEC Conference, Budapest, Hungary, 2018 (L)
 10th Joint BER II and BESSY II User Meeting, Helmholtz Zentrum Berlin, Berlin, Germany, 2018 (L)
 AsCA 2018/CRYSTAL 32 Conference, Auckland, New Zealand, 2018 (L)
 33rd Symposium of the Protein Society, Seattle, WA, USA, 2019 (2L)
 27th Annual Conference of the Society for Redox Biology and Medicine, virtual conference, 2020 (L)
 35th Symposium of the Protein Society, virtual conference, 2021 (L)
 28th Annual Conference of the Society for Redox Biology and Medicine, virtual conference, 2021 (L)
 36th Annual Symposium of the Protein Society, San Francisco, CA, USA, 2022 (L)

Selected lectures/seminars (of >20):

German-Hungarian Conference on Proteomics, Debrecen, Hungary, 2002
 University of Arizona, Tucson, AZ, USA, 2005
 National Institute of Chemistry, Ljubljana, Slovenia, 2007
 10th IUBMB Conference, Salvador da Bahia, Brazil, 2007
 University of Ulm, Ulm, Germany, 2007
 University of Pittsburgh, Pittsburgh, PA, USA, 2011
 Rutgers University, Newark, NJ, USA, 2012
 University of Arizona, Tucson, AZ, USA, 2012
 Semmelweis Symposium, Budapest, Hungary, 2012
 Helmholtz-Zentrum Berlin, Berlin, Germany, 2015
 Annual Conference of the Hungarian Biochemical Society, Szeged, Hungary, 2016
 Rutgers University, Newark, NJ, USA, 2017
 University of Arizona, Tucson, AZ, USA, 2017
 20th EBEC, Budapest, Hungary, 2018
 Frank Jordan Symposium, Rutgers University, Newark, NJ, USA, 2022

PDB coordinates:

1N68 Copper bound to the multicopper oxidase CueO
 1PF3 Crystal structure of the M441L mutant of the multicopper oxidase CueO
 1XAV Solution structure of the G-quadruplex in the human c-myc promoter
 2HY9 Structure of the intramolecular human telomeric G-quadruplex K⁺ solution
 5NHG Crystal structure of the human dihydrolipoamide dehydrogenase (hLADH)
 5J5Z Crystal structure of the D444V disease-causing mutant of hLADH
 6HG8 Crystal structure of the R460G disease-causing mutant of hLADH
 6H05 Cryo-EM structure of the E2 component of the hKGDHc [residues 218-453]
 6I4P Crystal structure of the disease-causing G194C mutant of hLADH
 6I4Z Crystal structure of the disease-causing P453L mutant of hLADH

6I4Q Crystal structure of hLADH at 1.75 Å resolution
6I4T Crystal structure of the disease-causing I445M mutant of hLADH
6I4U Crystal structure of the disease-causing G426E mutant of hLADH
6I4R Crystal structure of the disease-causing R460G mutant of hLADH at 1.44 Å resolution
6I4S Crystal structure of the disease-causing R447G mutant of hLADH
7PSC Crystal structure of the disease-causing I358T mutant of hLADH
7ZYT Crystal structure of the I318T pathogenic variant of hLADH

Conference Organization:

9th International Conference on Brain Energy Metabolism, Mitochondrial-Cytosolic Interactions: From Energetics to Pathogenesis, July 7-10, 2010, Semmelweis University, Budapest (organizing committee member)

20th EBEC Conference, August 25-30, 2018, Semmelweis University, Budapest (organizing committee member)

27th Annual Conference of the Society for Redox Biology and Medicine (SfRBM), November 18-20, 2020, Orlando, FL, USA, virtual conference (abstract reviewer)

35th Anniversary Symposium of the Protein Society, July 7-9 and 12-14, 2021, Boston, MA, USA, virtual conference (abstract reviewer and co-leader of the Career Development and Networking Table)

Memberships:

Protein Society (USA), 2001 – (also an elected member of the Membership Committee since 2020)

Public-Body member of the Hungarian Academy of Sciences, 2006 –

NMR Work Commission of the Hungarian Academy of Sciences, 2006 –

Hungarian Biochemical Society, 1996 –

Hungarian Society for Bioinformatics (2008 -)

International Society for Magnetic Resonance, 2010 –

European Society for Neurochemistry, 2013 –

American Chemical Society (by invitation), 2010 –

Society for Redox Biology and Medicine (by invitation, 2019-2022)

Reviewer for:

Analytical Biochemistry

Protein Expression and Purification

Biochimie

Human Genetics

Frontiers in Oncology

Journal of Structural Biology

Comparative Biochemistry and Physiology A

Journal of Photochemistry and Photobiology B: Biology

FEBS Letters

Preparative Biochemistry and Biotechnology

Biochimica et Biophysica Acta (BBA)

Cellular and Molecular Life Sciences

Human Molecular Genetics

MethodsX

ChemPhysChem

Journal of Clinical Investigation [Insight]

Nature Communications

Scientific Reports

Communications Biology

Neurochemical Research

Journal of Molecular Recognition

International Journal of Molecular Sciences

International Journal of Developmental Neuroscience

Life (IF=3.817 [2020], Editorial Board Member, 2020- ; Guest Editor of the Special Issue “Current Approaches in Molecular Enzymology”, 2021)

Invention:

Danzhou Yang, Laurence H. Hurley, Jixun Dai, Attila Ambrus, Ding Chen, “Folding Pattern and Structure of the G-quadruplex in the Human Telomeric Sequence Formed under Physiological Condition.” Invention Disclosure/Provisional Application for Patent, University of Arizona, Tucson, AZ, USA, submitted: March 30, 2006

Publication list:

1. Ambrus A, Fésüs L, Polyethylene glycol enhanced refolding of the recombinant human tissue transglutaminase. *Prep. Biochem. Biotechnol.* 31(1): 59-70 (2001), IF: 0.654
2. Ambrus A, Banyai I, Weiss M, Hilgenfeld R, Keresztessy Z, Muszbek L, Fesus L, Calcium binding of transglutaminases: a ⁴³Ca NMR study combined with surface polarity analysis. *J. Biomol. Struct. Dyn.* 19(1): 59-74 (2001), IF: 1.243
3. Ambrus A, Batta G, Kövér K, Groves P, Palczewska M, Kuznicki J, An NMR study of calretinin, a calcium binding protein. The first two domains. *Biokémia* (Hungarian) 25(2): 37-39 (2001), IF: -
4. Palczewska M, Groves P, Ambrus A, Kaleta A, Kover K, Batta G, Kuznicki J, Structural and biochemical characterization of neuronal calretinin domain I-II (residues 1-100). Comparison to homologous calbindin D28k domain I-II (residues 1-93). *Eur. J. Biochem.* 268(23): 6229-37 (2001), IF: 2.849
5. Roberts S, Wildner G, Grass G, Weichsel A, Ambrus A, Rensing C, Montfort W, A labile regulatory copper ion lies near the T1 copper site in the multicopper oxidase CueO. *J. Biol. Chem.* 278 (34): 31958-63 (2003), IF: 6.482
6. Ambrus A, Chen D, Dai J, Jones R, Yang D, Solution structure of the biologically relevant G-quadruplex element in the human c-MYC promoter. Implications for G-quadruplex stabilization. *Biochemistry-US* 44 (6): 2048-2058 (2005), IF: 3.848 [featured on the cover of *Biokémia* (Hungarian) 31(1), 2007]
7. Ambrus A, Chen D, Whatcott C, Somogyi A, Yang D, Matrix-assisted laser desorption/ ionization time-of-flight mass spectrometry protocol for monitoring the progress of enzymatic C-13/N-15-labeled DNA syntheses. *Anal. Biochem.* 342 (2): 246-53 (2005), IF: 2.670
8. Tangirala R, Dixon R, Yang D, Ambrus A, Antony S, Agama K, Pommier Y, Curran D, Total and semisynthesis and in vitro studies of both enantiomers of 20-fluorocamptothecin. *Bioorg. Med. Chem. Lett.* 15(21): 4736-40 (2005), IF: 2.478

9. Dai J, Dexheimer T, Chen D, Carver M, Ambrus A, Jones R, Yang D, An intramolecular G-quadruplex structure with mixed parallel/antiparallel G-strands formed in the human Bcl-2 promoter region in solution. *J. Am. Chem. Soc.* 128 (4): 1096-98 (2006), IF: 7.696 [ISI Web of Knowledge Essential Science Indicators Highly Cited Paper]
10. Ambrus A, Friedrich K, Somogyi A, Oligomerization of nitrophorins. *Anal. Biochem.* 352 (2): 286-95 (2006), IF: 2.948
11. Ambrus A, Chen D, Dai J, Bialis T, Jones R, Yang D, Human telomeric sequence forms a hybrid-type intramolecular G-quadruplex structure with mixed parallel/antiparallel strands in potassium solution. *Nucleic Acids Res.* 34 (9): 2723-35 (2006), IF: 6.317 [ISI Web of Knowledge Essential Science Indicators Highly Cited Paper; featured in Chemical & Engineering News (C&EN, ACS), July 21, 2006]
12. Dai J, Punchihewa C, Ambrus A, Chen D, Jones R, Yang D, Structure of the intramolecular human telomeric G-quadruplex in potassium solution: A novel adenine triple formation. *Nucleic Acids Res.* 35(7): 2440-50 (2007), IF: 6.954 [featured on the cover of Chemical & Engineering News (C&EN, ACS), May 28, 2007]
13. Ambrus A, Yang D, Diffusion ordered NMR spectroscopy for analysis of DNA secondary structural elements. *Anal. Biochem.* 367(1):56-67 (2007), IF: 3.002
14. Ambrus A, G-quadruplexes: structure and biological significance. *Biokémia* (Hungarian) 31(1): 2-8 (2007), IF: -
15. Ambrus A, Torocsik B, Adam-Vizi V, Periplasmic cold expression and one-step purification of human dihydrolipoamide dehydrogenase. *Protein Expres. Purif.*, 63(1): 50-57 (2009), IF: 1.563
16. Vajda S, Mandi M, Konrad C, Kiss G, Ambrus A, Adam-Vizi V, Chinopoulos C, A re-evaluation of the role of matrix acidification in uncoupler-induced Ca²⁺-release from mitochondria. *FEBS J.* 276(10): 2713-2724 (2009), IF: 3.042
17. Ambrus A, Torocsik B, Adam-Vizi V, Refolding of the human dihydrolipoamide dehydrogenase. *Biochem. Eng. J.* 45(2): 120-125 (2009), IF: 2.193
18. Ambrus A[#], Tretter L[#], Adam-Vizi V, Inhibition of the alpha-ketoglutarate dehydrogenase-mediated reactive oxygen species generation by lipoic acid. *J. Neurochem.* 109(S1): 222-229 (2009) ([#]=contributed equally), IF: 3.999
19. Dai J, Ambrus A, Hurley L, Yang D, A direct and nondestructive approach to determine the folding structure of the i-motif DNA secondary structure by NMR. *J. Am. Chem. Soc.* 131(17): 6102-6104 (2009), IF: 8.580
20. Ambrus A, Torocsik B, Tretter L, Ozohanics O, Adam-Vizi V, Stimulation of reactive oxygen species generation by disease-causing mutations of lipoamide dehydrogenase, *Hum. Mol. Genet.* 20(15): 2984-2995 (2011), IF: 7.636
21. Ambrus A, Adam-Vizi V, Molecular dynamics study of the structural basis of dysfunction and the modulation of reactive oxygen species generation by pathogenic mutants of human dihydrolipoamide dehydrogenase, *Arch. Biochem. Biophys.* 538(2):145-155 (2013), IF: 3.043
22. Tretter L, Ambrus A, Measurement of ROS homeostasis in isolated mitochondria, *Method. Enzymol.* 547: 199-223 (2014), IF: 2.088

23. Nemeria NS[#], Ambrus A[#], Patel H[#], Gerfen G, Adam-Vizi V, Tretter L, Zhou J, Wang J, Jordan F, Human 2-oxoglutarate dehydrogenase complex E1 component forms a thiamin-derived radical by aerobic oxidation of the enamine intermediate, *J. Biol. Chem.* 289: 29859-29873 (2014), IF: 4.573 ([#]=contributed equally)
24. Ambrus A, Mizsei R, Adam-Vizi V, Structural alterations by five disease-causing mutations in the low-pH conformation of human dihydrolipoamide dehydrogenase (hLADH) analyzed by molecular dynamics - implications in functional loss and modulation of reactive oxygen species generation by pathogenic hLADH forms, *Biochem. Biophys. Reports*, 2:50-56 (2015), IF: new (Elsevier) journal, no IF, yet
25. Ambrus A, Nemeria NS, Torocsik B, Tretter L, Nilsson M, Jordan F, Adam-ViziV, Formation of reactive oxygen species by human and bacterial pyruvate and 2-oxoglutarate dehydrogenase multienzyme complexes reconstituted from recombinant components, *Free Radic. Biol. Med.* 89: 642-650 (2015), IF: 5.784
26. Harami-Papp H, Pongor SL, Munkácsy G, Horvath G, Nagy MA, Ambrus A, Hauser P, Szabo A, Tretter L, Gyorffy B, TP53 mutation hits energy metabolism and increases glycolysis in breast cancer, *Oncotarget*, 7:67183-67195 (2016), IF: 5.168
27. Ambrus A[#], Wang J[#], Mizsei R[#], Zambo Z, Torocsik B, Jordan F, Adam-Vizi V, Structural alterations induced by ten disease-causing mutations of human dihydrolipoamide dehydrogenase analyzed by hydrogen/deuterium-exchange mass spectrometry: Implications for the structural basis of E3 deficiency, *Biochim. Biophys. Acta - Molecular Basis of Disease* 1862: 2098-2109 (2016) ([#]=contributed equally) (invited paper to Ambrus A), IF: 5.476
28. Szabo E, Ambrus A, Molecular pathomechanism of the human dihydrolipoamide dehydrogenase deficiency, *Biokémia* (Hungarian), 41(2): 44-63 (2017), IF: -
29. Ambrus A, Adam-Vizi V, Human dihydrolipoamide dehydrogenase (E3) deficiency: novel insights into the structural basis and molecular pathomechanism, *Neurochem. Int.*, 117: 5-14 (2018), IF: 3.994
30. Kiss E, Mirzahosseini A, Hubert A, Ambrus A, Orfi L, Horvath P, DNA binding of Sunitinib: spectroscopic evidence via circular dichroism and nuclear magnetic resonance, *J. Pharm. Biomed. Anal.*, 150: 355-361 (2018), IF: 2.983
31. Mikulas K, Hermann P, Gera I, Komlódi T, Horváth G, Ambrus A, Tretter L, Triethylene glycol dimethacrylate impairs bioenergetic functions and induces oxidative stress in mitochondria via inhibiting respiratory Complex I, *Dent. Mater.*, 34(7): e166-e181 (2018), IF: 4.440
32. Komlodi T, Geibl FF, Sassani M, Ambrus A, Tretter L, Membrane potential and delta pH dependency of reverse electron transport-associated hydrogen peroxide production in brain and heart mitochondria, *J. Bioenerg. Biomembr.*, 50: 355-365 (2018), IF: 2.548
33. Szabo E, Mizsei R, Wilk P, Zambo Z, Torocsik B, Weiss MS, Adam-Vizi V, Ambrus A, Crystal structures of the disease-causing D444V mutant and the relevant wild type human dihydrolipoamide dehydrogenase, *Free Radic. Biol. Med.*, 124: 214-220 (2018), IF: 5.657

34. Zhou J, Yang L, Ozohanics O, Zhang X, Wang J, Ambrus A, Arjunan P, Brukh R, Nemeria NS, Furey W, Jordan F, Unique Protein-Protein Interactions in the Human 2-Oxoglutarate Dehydrogenase Multienzyme Complex as Revealed by Multifaceted Approaches, *J. Biol. Chem.*, 293: 19213–19227 (2018), IF: 4.106
35. Ambrus A, An updated view on the molecular pathomechanisms of human dihydrolipoamide dehydrogenase deficiency in light of novel crystallographic evidence, *Neurochem. Res.*, 44(10): 2307-2313 (2019), IF: 3.038
36. Szabo E, Wilk P, Nagy B, Zambo Z, Bui D, Weichsel A, Arjunan P, Torocsik B, Hubert A, Furey W, Montfort WR, Jordan F, Weiss MS, Adam-Vizi V, Ambrus A, Underlying molecular alterations in human dihydrolipoamide dehydrogenase deficiency revealed by structural analyses of disease-causing enzyme variants, *Hum. Mol. Genet.*, 28(20): 3339-3354 (2019), IF: 5.100
37. Svab G, Doczi J, Gerencser AA, Ambrus A, Gallyas F, Sümegi B, Tretter L, The mitochondrial targets of neuroprotective drug vinpocetine on primary neuron cultures, brain capillary endothelial cells, synaptosomes, and brain mitochondria, *Neurochem. Res.* 44(10): 2435-2447 (2019), IF: 3.038
38. Dobolyi A, Bago A, Palkovits M, Nemeria NS, Jordan F, Doczi J, Ambrus A, Adam-Vizi V, Chinopoulos C, Exclusive neuronal detection of KGDHC-specific subunits in the adult human brain cortex despite pancellular protein lysine succinylation, *Brain Struct. Funct.* 225(2): 639-667 (2020), IF: 3.270
39. Zhang X, Nemeria NS, Leandro J, Houten S, Lazarus MB, Gerfen GJ, Ozohanics O, Ambrus A, Nagy B, Brukh R, Jordan F, Structure-function analyses of the G729R 2-oxoadipate dehydrogenase genetic variant associated with L-lysine metabolism disorder, *J. Biol. Chem.* 295(23): 8078-8095 (2020), IF: 5.157
40. Mikulás K, Komlódi T, Földes A, Sváb G, Horváth G, Nagy ÁM, Ambrus A, Gyulai-Gaál S, Gera I, Hermann P, Varga G, Tretter L, Bioenergetic Impairment of Triethylene Glycol Dimethacrylate-(TEGDMA-) Treated Dental Pulp Stem Cells (DPSCs) and Isolated Brain Mitochondria are Amended by Redox Compound Methylene Blue, *Materials (Basel)* 13(16): 3472 (2020), IF: 3.623
41. Ozohanics O, Ambrus A, Hydrogen-Deuterium Exchange Mass Spectrometry: A Novel Structural Biology Approach to Structure, Dynamics and Interactions of Proteins and Their Complexes, *Life (Basel)* 10(11): E286 (2020), IF: 3.817
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