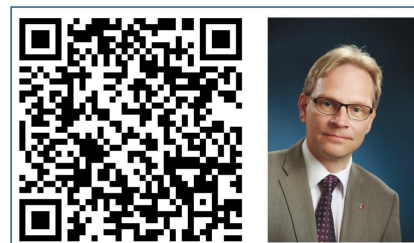


CURRICULUM VITAE

Seppo Parkkila, MD, PhD, is a professor of anatomy at Tampere University, Finland. He graduated from the University of Oulu in 1991 (MD) and obtained his PhD degree in 1994. From 1996-1998, he worked as a visiting researcher at Saint Louis University. In 2001, Dr. Parkkila obtained a specialist physician degree in Clinical Chemistry. In 2002, he was invited to the post of professor of medical technology and biotechnology at the University of Tampere, and in 2008, he was appointed to the post of professor in anatomy. In 2016-2018, Dr. Parkkila served as a vice-rector (research) at the University of Tampere. His research is focused on the functional



genomics of carbonic anhydrases and pH regulation. He has ~300 publications and three patents, and his *h-index* is 58. Professor Parkkila has served or is currently serving in the following positions: chair of the scientific advisory board of Biomedical Research Center of the Slovak Academy of Sciences, external evaluator of the EUROXY project (FP6 European Union), coordinator of the DeZnIT project (FP6 European Union), scientific advisor of the METOXIA project (FP7 European Union), advisor of the Alliance4Life project (Horizon 2020), editorial board member of the Journal of Enzyme Inhibition and Medicinal Chemistry, chairman of the Research Council (University of Tampere), chairman of the Preparatory Group for Tampere3 research, board member of FinnMedi, Ltd., advisory board member of the Finnish Medical Foundation, board member of the Pirkanmaa Hospital District, board member of the Tampere University Foundation, board member of the UKK Institute, chairman of the FinELib strategy group, and member of the General Synod of the Evangelical Lutheran Church of Finland.

FULL NAMES

PARKKILA Seppo Matti Olavi

DATE AND PLACE OF BIRTH

11/8/66, Vihanti, Finland

WWW-PAGES

www.seppoparkkila.fi

https://www.researchgate.net/profile/Seppo_Parkkila

<https://www.linkedin.com/in/seppo-parkkila-21742533/>

CURRENT POSITIONS

Professor of anatomy, Tampere University, Finland 2008-

EDUCATION

Specialist physician in Clinical Chemistry, University of Oulu 05/14/01

Docent, University of Oulu 11/01/99

Doctor of Medical Science (Ph.D. degree), University of Oulu 12/13/94

Licensed physician 10/14/92

Licentiate of Medicine, (M.D. degree), University of Oulu 02/19/91

MILITARY RANK

Senior Lieutenant M.C. 2018

PREVIOUS PROFESSIONAL APPOINTMENTS

Vice-rector (research), University of Tampere, Finland	2016-2018 (36 months)
Professor of medical technology and biotechnology (Institute of Medical Technology, University of Tampere)	2002-2007 (60 months)
Senior scientist (Academy of Finland)	2006-2007 (12 months)
Chief physician (part-time) (Laboratory Centre, Tampere University Hospital)	2002-2007 (70 months)
Acting professor (Department of Anatomy and Cell Biology, University of Oulu)	1998-2001 (22 months)
Senior lecturer (Department of Anatomy and Cell Biology, University of Oulu)	1998-2001 (14 months)
Visiting scientist (Edward A. Doisy Department of biochemistry and molecular biology, Saint Louis University School of Medicine)	1996-1998 (24 months)
Acting senior lecturer (Department of Anatomy, University of Oulu)	1991-1993 (20 months)
Junior lecturer (Department of Anatomy, University of Oulu)	1991-1998 (7 months)
Resident (Oulu University Hospital)	1989-2001 (27 months)
General practitioner (in Municipal Health Services of Pudasjärvi and Raahe)	1989-1996 (9 months)
Acting junior lecturer (Department of Anatomy, University of Oulu)	1986-1990 (41 months)

CURRENT EXTERNAL FUNDING

Academy of Finland, Jane & Aatos Erkko Foundation, Pirkanmaa Hospital District

AWARDS

Medix-award	1992
Carl Bertil Laurell-award	1998
Dako-award	1999
University of Helsinki Bronze medal	2011
University of Tampere Silver medal	2018
Teacher of the year (C I, Univ. of Tampere School of Medicine)	2008
Teacher of the year (C II, Univ. of Tampere School of Medicine)	2009
Teacher of the year (C II, Univ. of Tampere School of Medicine)	2010
Teacher of the year (C II, Univ of Tampere School of Medicine)	2011
Teacher of the year (Univ. of Tampere School of Medicine)	2012
Teacher of the year (Univ. of Tampere School of Medicine)	2013
Teacher of the year (C II, Univ of Tampere School of Medicine)	2014
Teacher of the year (Univ. of Tampere School of Medicine)	2015
Teacher of the year (C II, Univ. of Tampere, Faculty of Medicine and Life Sci)	2018
Teacher of the year (C II, Tampere Univ, Faculty of Medicine and Health Technology)	2019

Knight, First class, of the Order of the White Rose of Finland

2018

SUPERVISED MSc THESES

Milla Hänninen, MSc (Biotechnology), 2005
 Mika Hilvo, MSc (Biotechnology), 2005
 Piia Halmi, MSc (Biotechnology), 2006
 Heini Kallio, MSc (Biotechnology), 2007
 Alise Hyrskyluoto, MSc (Biotechnology), 2009
 Henna Luukkonen, MSc (Biotechnol.), 2009

Sina Saari, MSc (Biotechnology), 2011
 Ashok Aspatwar, MSc (Bioinformatics), 2011
 Maarit Patrikainen, MSc (Bioinf.), 2012
 Harlan Barker, MSc (Bioinformatics), 2013
 Alma Yrjänäinen, MSc (Biotechnology), 2019

SUPERVISED PhD THESES

Jyrki Kivelä, DDS, PhD, 1999
 Juha Saarnio, MD, PhD, 2000
 Pepe Karhumaa, MD, PhD, 2002
 Antti Kivelä, MD, PhD, 2003
 Jokke Hannuksela, MD, PhD, 2004
 Mari Leppilampi, PhD, 2006
 Mika Hilvo, PhD, 2008
 Alejandra Rodriguez Martinez, PhD, 2009

Fatemeh Bootorabi, PhD, 2011
 Joonas Haapasalo, MD, PhD, 2011
 Heini Kallio, PhD, 2011
 Piritta Hynninen, MD, PhD, 2014
 Ashok Aspatwar, PhD, 2014
 Leo Syrjänen, MD, PhD, 2015
 Reza Zolfaghari Emameh, PhD, 2016
 Maarit Patrikainen, PhD, 2019

EXPERIENCE AS A SCIENTIFIC EVALUATOR

Referee frequently for various international journals

Referee for doctoral thesis 12 times

Opponent for doctoral thesis 4 times

Evaluator several times for adjunct professor (docent) positions in Finnish universities

Member of the committee for evaluation of adjunct professor (docent) candidates, BioMediTech, University of Tampere

2007-2016

External evaluator of EUROXY project (FP6 European Union)

2006

Chair of the scientific advisory board of Biomedical Research Center of the Slovak Academy of Sciences

2020-

Chairman of the committee for pre-evaluation of associate professor candidates, School of Medicine, University of Tampere

2013

Evaluator for associate research professor (molecular biology) appointment, Department of Biochemistry and Molecular Biology, Saint Louis University School of Medicine, St. Louis, MO, U.S.A.

2001

Evaluator for professor (anatomy) appointment, University of Helsinki, Faculty of Medicine

2011

Evaluator for professor (tissue and cell biology) appointment, University of Eastern Finland, Faculty of Health Sciences

2013

Evaluator for professor (anatomy) appointment, Arab Gulf University, Bahrain

2017

Evaluator for professor (Medical Biology) appointment,
University of Eastern Finland, Faculty of Health Sciences 2019

Evaluator for associate professor (anatomy) appointment,
Arab Gulf University, Bahrain 2020

BOARD MEMBERSHIPS

Board member of the Institute of Medical Technology, University of Tampere 2004-2007

Board member of the School of Medicine, University of Tampere 2011-2015

Board member, Faculty of Medicine and Health Technology, Tampere University 2019-

Board member, The University of Tampere Foundation 2016-

Anatomici Fenniae, Board member 2008-,
Chairman 2011-2012, 2016-) 2008-

Board member, FinnMedi Ltd 2016-2019

Board member, Pirkanmaa Hospital District 2018-

Advisory board member, The Finnish Medical Foundation 2018-2020

Scientific advisory board member, MABPRO (<http://www.mabpro.sk/team/>) 2018-

Board member, UKK Institute 2019-

OTHER ACTIVITIES

Director of M.D., Ph.D. program, University of Oulu 2000-2001

Director of M.D., Ph.D. program, University of Tampere 2008-2015

Chairman of steering group of Biotechnology curriculum,
University of Tampere 2002-2006

Member of the postgraduate study committee,
Institute of Biomedical Technology (BioMediTech), University of Tampere, 2011-2016

Vice chairman of the postgraduate study committee,
School of Medicine, University of Tampere 2014-2016

Member of the Organizing Committee: the 6th International Conference
on Carbonic Anhydrases, Smolenice, Slovak Republic 2003

Member of the Organizing Committee: the 8th International Conference
on Carbonic Anhydrases, Florence, Italy 2009

Member of the Organizing Committee: the 9th International Conference
on Carbonic Anhydrases, Antalya, Turkey 2012

Coordinator of DeZnIT project (FP6 European Union) 2009-2010

Scientific advisor of METOXIA project (FP7 European Union) 2010-2014

Advisor of Alliance4Life project (Horizon 2020) 2018-2019

Editorial board member of the Journal of Enzyme Inhibition and Medicinal Chemistry	2013-
Chairman of Research Council (University of Tampere)	2016-2018
Member of Education Council (Tampere University)	2019-
Chairman of the Preparatory Group for Tampere3 research	2017-2018
Attendee of the leadership training program, University of Tampere	2009-2010
Chairman of the FinELib strategy group	2018-
Steering group member of an EUA study "Study on Read & Publish Contracts in the Context of a Dynamic Scholarly Publishing System"	2019-2020
Steering group member of the SPARK-Finland program	2017-2020
Steering group member of the Open Science and Data project (UNIFI)	2017-2018
Candidate for the parliament of Finland (National Coalition Party)	2015
Member of Vesilahti Evangelical-Lutheran parish council chairman 2011-2018	2007-2022
Member of the General Synod of the Evangelical Lutheran Church of Finland	2020-2023
Member of Administration Committee (the General Synod of the Evangelical Lutheran Church of Finland)	2020-2023
Participant of National Defence Course 224	2018

PUBLICATIONS IN INTERNATIONAL PEER-REVIEWED JOURNALS
h-index 58, (Scopus)

Seppo Parkkila

1. Parkkila S, Rajaniemi H: Carbonic anhydrase activity in peripheral T-lymphocytes and appearance of the activity during their maturation in the thymus. A histochemical demonstration.
Histochemistry 1989;91:479-482.
2. Parkkila S, Kaunisto K, Rajaniemi L, Kumpulainen T, Jokinen K, Rajaniemi H: Immunohistochemical localization of carbonic anhydrase isoenzymes VI, II and I in human parotid and submandibular glands.
J Histochem Cytochem 1990;38:941-947.
3. Kaunisto K, Parkkila S, Tammela T, Rönberg L, Rajaniemi H: Immunohistochemical localization of carbonic anhydrase isoenzymes in the human male reproductive tract.
Histochemistry 1990;381-386.
4. Parkkila S, Kaunisto K, Kellokumpu S, Rajaniemi H: A high activity carbonic anhydrase isoenzyme (CA II) is present in mammalian spermatozoa.
Histochemistry 1991;95:477-482.
5. Niemelä O, Juvonen T, Parkkila S: Immunohistochemical demonstration of acetaldehyde-modified epitopes in human liver after alcohol consumption.
J Clin Invest 1991;87:1367-1374.
6. Parkkila A-K, Parkkila S, Juvonen T, Rajaniemi H: Carbonic anhydrase isoenzymes II and I are present in the zona glomerulosa cells of the human adrenal gland.
Histochemistry 1993;99:37-41.
7. Parkkila S, Parkkila A-K, Kaunisto K, Waheed A, Sly WS, Rajaniemi H: Location of a membrane-bound carbonic anhydrase isoenzyme (CA IV) in the human male reproductive tract.
J Histochem Cytochem 1993;41:751-757.
8. Halsted CH, Villanueva J, Chandler CJ, Ruebner B, Munn RJ, Parkkila S, Niemelä O: Centrilobular distribution of acetaldehyde and collagen in the ethanol-fed micropig.
Hepatology 1993;18:954-960.
9. Parkkila S, Rajaniemi H, Kellokumpu S: Polarized expression of a band 3-related protein in mammalian sperm cells.
Biol Reprod 1993;49:326-331.
10. Parkkila S, Parkkila A-K, Vierjoki T, Ståhlberg T, Rajaniemi H: Competitive time-resolved immunofluorometric assay for quantifying carbonic anhydrase VI in saliva.
Clin Chem 1993;39:2154-2157.
11. Juvonen T, Räsänen O, Reinilä A, Parkkila S, Nissinen J, Kairaluoma MI, Sormunen R, Niemelä O: Segmental mediolytic arteritis - Electronmicroscopic and immunohistochemical study.
Eur J Vasc Surg 1994;8:70-77.
12. Mühlhauser J, Crescimanno C, Rajaniemi H, Parkkila S, Milovanov AP, Castellucci M, Kaufmann P: Immunohistochemistry of carbonic anhydrase in human placenta and fetal membranes.
Histochemistry 1994;101:91-98.
13. Parkkila S, Parkkila A-K, Juvonen T, Rajaniemi H: Distribution of carbonic anhydrase isoenzymes I, II and VI in the human alimentary tract.
Gut 1994;35:646-650.

14. Niemelä O, Parkkila S, Ylä-Herttua S, Halsted C, Witztum JL, Lanca A, Israel Y: Covalent protein adducts in the liver as a result of ethanol metabolism and lipid peroxidation. *Lab Invest* 1994;70:537-546.
15. Sasano H, Kato K, Nagura H, Parkkila S, Parkkila A-K, Rajaniemi H, Sugai N: Carbonic anhydrases in the human adrenal gland and its disorders - Immunohistochemical and biochemical studies of the enzymes. *Endocrine Pathol* 1994;5:100-106.
16. Parkkila A-K, Parkkila S, Serlo W, Reunanen M, Rajaniemi H: A competitive dual-label time-resolved immunofluorometric assay for simultaneous detection of carbonic anhydrase I and II in cerebrospinal fluid. *Clin Chim Acta* 1994;230:81-89.
17. Juvonen T, Parkkila S, Parkkila A-K, Niemelä O, Lajunen LHJ, Kairaluoma MI, Perämäki P, Rajaniemi H: High-activity carbonic anhydrase isoenzyme (CA II) in human gallbladder epithelium. *J Histochem Cytochem* 1994;42:1393-1397.
18. Juvonen T, Parkkila S, Lepojärvi M, Niemelä O: Demonstration of a bioactive elastin-derived peptide (Val-Gly-Val-Ala-Pro-Gly) in vascular lesions characterized by the segmental destruction of media. *Ann Chir Gynaecol* 1994;83:296-302.
19. Parkkila S, Parkkila A-K, Juvonen T, Lehto V-P, Rajaniemi H: Immunohistochemical demonstration of the carbonic anhydrase isoenzymes I and II in pancreatic tumours. *Histochem J* 1995;27:133-138.
20. Parkkila S, Parkkila A-K, Rajaniemi H: Circadian periodicity in salivary carbonic anhydrase VI concentration. *Acta Physiol Scand* 1995;154:205-211.
21. Kaunisto K, Parkkila S, Parkkila A-K, Waheed A, Sly WS, Rajaniemi H: Expression of carbonic anhydrase isoenzymes IV and II in rat epididymal duct. *Biol Reprod* 1995;52:1350-1357.
22. Tsukamoto H, Horne W, Kamimura S, Niemelä O, Parkkila S, Ylä-Herttua S, Brittenham GM: Experimental liver cirrhosis induced by alcohol and iron. *J Clin Invest* 1995;96:620-630.
23. Parkkila S, Ahonen A, Tornainen P, Heikkilä J, Salmela P: Detection of cervical metastases of thyroid medullary carcinoma by MoAb anti-CEA scintigraphy and immunohistochemistry. *Eur J Nucl Med* 1995;22:1064-1068.
24. Niemelä O, Parkkila S, Ylä-Herttua S, Villanueva J, Ruebner B, Halsted CH: Sequential acetaldehyde production, lipid peroxidation, and fibrogenesis in micropig model of alcohol-induced liver disease. *Hepatology* 1995;22:1208-1214.
25. Fleming RE, Parkkila S, Parkkila A-K, Rajaniemi H, Waheed A, Sly WS: Carbonic anhydrase IV expression in rat and human gastrointestinal tract. Regional, cellular, and subcellular localization. *J Clin Invest* 1995;96:2907-2913.
26. Parkkila A-K, Herva R, Parkkila S, Rajaniemi H: Immunohistochemical demonstration of human carbonic anhydrase isoenzyme II in brain tumours. *Histochem J* 1995;27:974-982.

27. Parkkila S, Niemelä O, Britton RS, Brown KE, Ylä-Herttuala S, O'Neill R, Bacon B: Vitamin E decreases hepatic levels of aldehyde-derived peroxidation products in rats with iron overload. *Am J Physiol* 1996;270:G376-G384.
28. Parkkila A-K, Parkkila S, Rajaniemi H: Carbonic anhydrase isoenzyme II is located in corticotrophs of the human pituitary gland. *J Histochem Cytochem* 1996;44:245-250.
29. Parkkila S, Parkkila A-K, Juvonen T, Waheed A, Sly WS, Saarnio J, Kaunisto K, Kellokumpu S, Rajaniemi H: Membrane-bound carbonic anhydrase IV is expressed in the luminal plasma membrane of the human gallbladder epithelium. *Hepatology* 1996;24:1104-1108.
30. Parkkila S, Parkkila A-K: Carbonic anhydrase in the alimentary tract. Roles of the different isozymes and salivary factors in the maintenance of optimal conditions in the gastrointestinal canal. *Scand J Gastroenterol* 1996;31:305-317.
31. Pastoreková S, Parkkila S, Parkkila A-K, Opavský R, Zelník V, Saarnio J, Pastorek J: Carbonic anhydrase IX, MN/CA IX: Analysis of stomach complementary DNA sequence and expression in human and rat alimentary tracts. *Gastroenterology* 1997;112:398-408.
32. Parkkila S, Waheed A, Britton RS, Feder JN, Tsuchihashi Z, Schatzman RC, Bacon BR, Sly WS: Immunohistochemistry of HLA-H, the protein defective in patients with hereditary hemochromatosis, reveals unique pattern of expression in gastrointestinal tract. *Proc Natl Acad Sci USA* 1997;94:2534-2539.
33. Parkkila A-K, Parkkila S, Reunanen M, Niemelä O, Tuisku S, Rautakorpi I, Rajaniemi H: Carbonic anhydrase II in the cerebrospinal fluid: its value as a disease marker. *Eur J Clin Invest* 1997;27:392-397.
34. Parkkila S, Parkkila A-K, Lehtola J, Reinilä A, Södervik H-J, Rannisto M, Rajaniemi H: Salivary carbonic anhydrase protects gastroesophageal mucosa from acid injury. *Digest Dis Sci* 1997;42:1013-1019.
35. Feder JN, Tsuchihashi Z, Irrinki A, Lee VK, Mapa FA, Morikang E, Prass CE, Starnes SM, Wolff RK, Parkkila S, Sly WS, Schatzman RC: The hemochromatosis founder mutation in HLA-H disrupts b₂-microglobulin interaction and cell surface expression. *J Biol Chem* 1997;272:14025-14028.
36. Kivelä J, Parkkila S, Metteri J, Parkkila A-K, Toivanen A, Rajaniemi H: Salivary carbonic anhydrase VI concentration and its relation to basic characteristics of saliva in young men. *Acta Physiol Scand* 1997;161:221-225.
37. Waheed A, Parkkila S, Zhou XY, Tomatsu S, Tsuchihashi Z, Feder JN, Schatzman RC, Britton RS, Bacon BR, Sly WS: Hereditary hemochromatosis: Effects of C282Y and H63D mutations on association with b₂-microglobulin, intracellular processing, and cell surface expression of the HFE protein in COS-7 cells. *Proc Natl Acad Sci USA* 1997;94:12384-12389.
38. Kivelä J, Parkkila S, Waheed A, Parkkila A-K, Sly WS, Rajaniemi H: Secretory carbonic anhydrase isoenzyme (CA VI) in human serum. *Clin Chem* 1997;43:2318-2322.
39. Parkkila S, Waheed A, Britton RS, Bacon BR, Zhou XY, Tomatsu S, Fleming RE, Sly WS: Association of the transferrin receptor in human placenta with HFE, the protein defective in hereditary hemochromatosis. *Proc Natl Acad Sci USA* 1997;94:13198-13202.

40. Saarnio J, Parkkila S, Parkkila A-K, Waheed A, Casey MC, Zhou ZY, Pastoreková S, Pastorek J, Karttunen T, Haukipuro K, Kairaluoma MI, Sly WS: Immunohistochemistry of carbonic anhydrase isozyme IX (MN/CA IX) in human gut reveals polarized expression in the epithelial cells with the highest proliferative capacity.
J Histochem Cytochem 1998;46:497-504.
41. Satta J, Laurila A, Pääkkö P, Haukipuro K, Sormunen R, Parkkila S, Juvonen T: Chronic inflammation and elastin degradation in abdominal aortic aneurysm disease: an immunohistochemical and electron microscopic study.
Eur J Vasc Surg 1998;15:313-319.
42. Zhou XY, Tomatsu S, Fleming RE, Parkkila S, Waheed A, Jiang J, Fei Y, Brunt EM, Ruddy DA, Prass CE, Schatzman RC, O'Neill R, Britton RS, Bacon BR, Sly WS: HFE gene knockout produces mouse model of hereditary hemochromatosis.
Proc Natl Acad Sci USA 1998;95:2492-2497.
43. Saarnio J, Parkkila S, Parkkila A-K, Haukipuro K, Pastoreková S, Pastorek J, Kairaluoma MI, Karttunen TJ: Immunohistochemical study of colorectal tumors for expression of a novel transmembrane carbonic anhydrase, MN/CA IX, with potential value as a marker of cell proliferation.
Am J Pathol 1998;153:279-285.
44. Parkkila A-K, Scarim AL, Parkkila S, Waheed A, Corbett JA, Sly WS: Expression of carbonic anhydrase V in pancreatic b-cells suggests role for mitochondrial carbonic anhydrase in insulin secretion.
J Biol Chem 1998;273:24620-24623.
45. Niemelä O, Parkkila S, Pasanen M, Iimuro Y, Bradford B, Thurman RG: Early alcoholic liver injury: Formation of protein adducts with acetaldehyde and lipid peroxidation products, and expression of CYP2E1 and CYP3A.
Alcohol: Clin Exp Res 1998;22:2118-2124.
46. Satta J, Ahonen A, Parkkila S, Leinonen L, Apaja-Sarkkinen M, Lepojärvi M, Juvonen T: Multiple endocrine neoplastic-associated thymic carcinoid tumour in close relatives: octreotide scan as a new diagnostic and follow-up modality. Two case reports.
Scand Cardiovasc J 1999;33:49-53.
47. Kivelä J, Parkkila S, Parkkila A-K, Rajaniemi H: A low concentration of carbonic anhydrase isoenzyme VI in whole saliva is associated with caries prevalence.
Caries Res 1999;33:178-184.
48. Leinonen J, Kivelä J, Parkkila S, Parkkila A-K, Rajaniemi H: Salivary carbonic anhydrase isoenzyme VI is located in the human enamel pellicle.
Caries Res 1999;33:185-190.
49. Saarnio J, Parkkila S, Parkkila A-K, Waheed A, Karttunen T, Sly WS: Cell-specific expression of mitochondrial carbonic anhydrase in the human and rat gastrointestinal tract.
J Histochem Cytochem 1999;47:517-524.
50. Waheed A, Parkkila S, Saarnio J, Fleming RE, Zhou XY, Tomatsu S, Britton RS, Bacon BR, Sly WS: Association of HFE protein with transferrin receptor in crypt enterocytes of human duodenum.
Proc Natl Acad Sci USA 1999;96:1579-1584.
51. Niemelä O, Parkkila S, Britton RS, Janney CG, Brunt EM, Bacon BR: Hepatic lipid peroxidation in patients with hereditary hemochromatosis and alcohol abuse.
J Lab Clin Med 1999;133:451-460.

52. Niemelä O, Parkkila S, Pasanen M, Viitala K, Villanueva JA, Halsted CH: Induction of cytochrome P450 enzymes and generation of protein-aldehyde adducts are associated with sex-dependent sensitivity to alcohol-induced liver disease in micropigs.
Hepatology 1999;30:1011-1017.
53. Parkkila S, Halsted CH, Väänänen HK, Niemelä O: Expression of testosterone-dependent enzyme, carbonic anhydrase III, and oxidative stress in experimental alcoholic liver disease.
Digest Dis Sci 1999;44:2205-2213.
54. Kivelä J, Parkkila S, Parkkila A-K, Leinonen J, Rajaniemi H: Salivary carbonic anhydrase isoenzyme VI.
J Physiol 1999;520:315-320.
55. Karhumaa P, Parkkila S, Türeci Ö, Waheed A, Grubb JH, Shah G, Parkkila A-K, Kaunisto K, Tapanainen J, Sly WS, Rajaniemi H: Identification of carbonic anhydrase XII as the membrane isozyme expressed in the normal human endometrial epithelium.
Mol Hum Reprod 2000;6:68-74.
56. Kivelä A, Parkkila S, Saarnio J, Karttunen TJ, Kivelä J, Parkkila A-K, Waheed A, Sly WS, Grubb JH, Shah G, Türeci Ö, Rajaniemi H: Expression of a Novel Transmembrane Carbonic Anhydrase Isozyme XII in Normal Human Gut and Colorectal Tumors.
Am J Pathol 2000;156:577-584.
57. Parkkila S, Rajaniemi H, Parkkila A-K, Kivelä J, Waheed A, Pastoreková S, Pastorek J, Sly WS: Carbonic anhydrase inhibitor suppresses invasion of renal cancer cells in vitro.
Proc Natl Acad Sci USA 2000;97:2220-2224.
58. Parkkila S, Parkkila A-K, Waheed A, Britton RS, Zhou XY, Fleming RE, Tomatsu S, Bacon BR, Sly WS: Cell surface expression of HFE protein in epithelial cells, macrophages, and monocytes.
Haematologica 2000;85:340-345.
59. Karhumaa P, Parkkila S, Waheed A, Parkkila A-K, Kaunisto K, Tucker PW, Huang C-J, Sly WS, Rajaniemi H: Nuclear NonO/p54^{nrb} protein is a nonclassical carbonic anhydrase.
J Biol Chem 2000;275:16044-16049.
60. Ghadour MS, Parkkila A-K, Parkkila S, Waheed A, Sly WS: Mitochondrial carbonic anhydrase (CA V) in the nervous system: expression in neuronal and glial cells.
J Neurochem 2000;75:2212-2220.
61. Rintala J, Jaatinen P, Parkkila S, Sarviharju M, Kianmaa K, Hervonen A, Niemelä O: Evidence of acetaldehyde-protein adduct formation in rat brain after lifelong consumption of ethanol.
Alcohol Alcoholism 2000;35:458-63.
62. Jokelainen K, Parkkila S, Salaspuro M, Niemelä O: Covalent adducts of proteins with acetaldehyde in the liver as a result of acetaldehyde administration in drinking water.
J Hepatol 2000;33:926-932.
63. Niemelä O, Parkkila S, Juvonen RO, Viitala K, Gelboin HV, Pasanen M: Cytochromes P450 2A6, 2E1, and 3A and production of protein-aldehyde adducts in the liver of patients with alcoholic and non-alcoholic liver diseases.
J Hepatol 2000;33:893-901.
64. Kivelä AJ, Parkkila S, Saarnio J, Karttunen TJ, Kivelä J, Parkkila A-K, Pastoreková S, Pastorek J, Waheed A, Sly WS, Rajaniemi H: Expression of transmembrane carbonic anhydrase isoenzymes IX and XII in normal human pancreas and pancreatic tumours.
Histochem Cell Biol 2000;114:197-204.

65. Parkkila S, Parkkila A-K, Saarnio J, Kivelä J, Karttunen TJ, Kaunisto K, Waheed A, Sly WS, Türeci Ö, Virtanen I, Rajaniemi H: Expression of the membrane-associated carbonic anhydrase isozyme XII in the human kidney and renal tumors.
J Histochem Cytochem 2000;48:1601-1608.
66. Parkkila S, Parkkila A-K, Rajaniemi H, Shah GN, Grubb JH, Waheed A, Sly WS: Expression of membrane-associated carbonic anhydrase XIV on neurons and axons in mouse and human brain.
Proc Natl Acad Sci USA 2001;98:1918-1923.
67. Makkonen K, Viitala K, Parkkila S, Niemelä O: Serum IgG and IgE antibodies against mold-derived antigens in patients with symptoms of hypersensitivity.
Clin Chim Acta 2001;305:89-98.
68. Leinonen J, Parkkila S, Kaunisto K, Koivunen P, Rajaniemi H: Secretion of carbonic anhydrase isoenzyme VI (CA VI) from human and rat lingual serous von Ebner's glands.
J Histochem Cytochem 2001;49:657-662.
69. Worrall S, Niemelä O, Parkkila S, Peters TJ, Preedy VR: Protein adducts in type I and type II fibre predominant muscles of the ethanol-fed rat: preferential localisation in the sarcolemmal and sub-sarcolemmal region.
Eur J Clin Invest 2001;31:723-730.
70. Latvala J, Parkkila S, Melkko J, Niemelä O: Acetaldehyde adducts in blood and bone marrow of patients with ethanol-induced erythrocyte abnormalities.
Mol Med 2001;7:401-405.
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Treatment of Mammalian disorders mediated by alpha-carbonic anhydrase isoforms. Taiwanese patent I565466 (099117619), filing date June 1, 2010, duration January 11, 2017-May 31, 2030.

Treatment of Mammalian Disorders Mediated by Alpha-Carbonic Anhydrase Isoforms. US Patent 9,623,025, filing date June 1, 2010, granted April 18, 2017.

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