Curriculum vitae

Personal information

Mag.ª Dr.in Irene FRISCHAUF, MLBT

irene.frischauf@jku.at
https://www.jku.at/institut-fuer-biophysik/ueber-uns/team/irene-frischauf/
August 1st 1981, Linz

Current position

Senior Scientist
Johannes Kepler University Linz
Institute of Biophysics

Academic education

September 2016 – September 2018
Masters program Legal and business aspects in technics
Johannes Kepler University Linz
Masterthesis at the Institute of Employment Law
Title:
Drittmittelfinanzierte Arbeitsverhältnisse der Universitätsforschung

January 2005 – April 2008
PhD of Natural Sciences
Johannes Kepler University Linz
Dissertation at the Institute of Biophysics
Title:
Elucidation of Ca^{2+} entry in living cells and their manipulation on polymers

October 1999 – December 2004
Masterstudies of Biology / branch of studies: Genetics
Paris Lodron University Salzburg
Masterthesis at the Institute of Biophysics
Title:
Structure-function relationship of N-terminal fragments from TRP proteins

September 1991 – June 1999
Bundesrealgymnasium Hamerlingstrasse, Linz

Personal interests

- Photography
- Travelling
- Golf
- Nature
- Reading

Additional competences

- Driving license A +B
- First-aid course
- Zielgruppenorientiertes Texten für den Berufsalltag, JKU (2019)
  Arbeitsrecht für Führungskräfte, JKU (2018)
  Wirkung und Präsenz für Vorlesungen und Vorträge, JKU (2015)
  Argumentieren/Präsentieren, BFI OÖ (2010)
  Karrierelinks – Erfolgsstrategien und Karriereperspektiven für Wissenschafterinnen, JKU (2006)

Professional experience

May 2008 – ongoing	Post-Doc at the Institute of Biophysics (JKU) key responsibilities: project implementation and management, team management, teaching, supervision of Bachelor-, Master- and PhD-students
January 2005 – April 2008	Prae-Doc at the Institute of Biophysics (JKU)

Memberships

Kepler Society Alumniclub
Executive Editor Journal of Physiology and Biochemistry
Member of the Editorial Board Frontiers Pharmacology of Ion Channels and Channelopathies

Reviewer activities

Journal of Physiology and Biochemistry (IF 2.736)
BBA (Biochimica et Biophysica Acta) (IF .739)
Cells (IF 5.656)
Cancers (IF 6.162)
Pharmaceuticals (IF 3.80)
Journal of Molecular Medicine (IF 4.746)
International Journal of Molecular Sciences (IF 4.183)
Scientific Reports (IF 4.525)

Conference organisation

COST meeting BM1406 – What do we know about Orai/STIM signaling? Medical University Graz, 11.-14. February 2019 in cooperation with DI Dr. PD Rainer Schindl (Medical University Graz)

Personal skills and competences

Languages

German	
English	C1
Latin	B1
Spanish	A2
Italian	A2
French	A2

Further training
Academic Research in English, ACRN Oxford (2019,2018)

Scientific English: writing for publication, JKU (2018)

Spring Course : academic english writing, Cambridge (2016)

Spanisch 1, BFI OÖ (2010)
Italienisch 2-4, BFI OÖ (2014-2015)

IT - skills

Windows	
MS Office	
Corel Draw	
Origin	
Image J	

Funded scientific projects (FWF) total sum **€ 1 197.542,25**

May 2019 – May 2022	**FWF stand-alone project**: P32075-B (EUR 399.015,75) *Structural rearrangements in disease-related STIM1 proteins*
February 2016 – May 2019	**FWF stand-alone project**: P28872-B27 (EUR 349.765,50) *Gating mechanism of cancer-related Orai1 channel mutants*
December 2012 – February 2016	**Elise-Richter Grant**: V286-B21 (EUR 256.431,00) *The Orai1 pore entrance is modulated by its third loop*
September 2009 – August 2012	**Hertha-Firnberg Grant**: T442-B09 (EUR 192.330,00) *Regulation and gating of Orai channels*

Teaching activities

Johannes Kepler University Linz

VO Molekularbiologie I (3 ECTS)
PR Molekularbiologie I (3 ECTS)
VO Molekularbiologie II (1,5 ECTS)
PR Molekularbiologie II (4,5 ECTS)
VO Molekularbiologie 1 für Lehramt Biologie (1 ECTS)
PR Molekularbiologie 2 für Lehramt Biologie (3 ECTS)
VO Biochemie für Lehramt Biologie (3 ECTS)
Supervision of Bachelor- , Master-, and PhD students (see attachement)

University of Applied Sciences (FH) Wels

VO Advanced Biotechnology II (2 ECTS)
PR Biotechnologie (2 ECTS)
PR Mikrobiologie (1 ECTS)

International experience

2012 and 2015
Research stay at the University of Extremadura, Cáceres,Spain
Work group of Dr. Juan Rosado, Institute of Physiology (2 months each)

Further university commitment

Support of the GEN-AU summer school
Support of the JKU Young Scientists program

Assistance in activities of the University:
Studieninformationsmesse
Frauen in die Technik
Lange Nacht der Forschung
Member of the faculty-meeting TNF JKU

H-index: 21

ORCID-ID 0000-0003-0661-2932

Google scholar

Invited talks

2020 **Calcium Signaling: Molecular Mechanisms to role in health and disease**
Bangalore, India
Title: New insights into STIM1 activation of Orai1

2019 **Calcium Signalling Conference**
Fez, Morocco
Title: New insights into STIM1 activation of Orai1

2019 **The Second Li River International Forum of Pharmaceutical Science**
(LRIFPS-2), Guilin, China
Title: The caclium-selective channel Orai1 as pharmaceutical target

2019 **Medical University Graz, Doctoral College Metabolic & Cardiovascular Disease**
Austria
Title: Structural rearrangements and altered gating properties of CRAC channel proteins in cancer

2018 **COST meeting BM1406 – ion channels and immune response**
Dublin, Ireland
Title: *Molecular insights into the pathophysiology of the Ca^{2+} sensing protein STIM1*

Oxford University, England
Work group of Dr. Anant Parekh
Title: *Pathophysiology of the Ca^{2+} sensing protein STIM1*

2010 **Stanford University**, USA
Work group of Dr. Richard Lewis
Title: *Cooperativeness of Orai cytosolic domains tunes subtype specific gating*

Awards

2015

Best Poster Award
(Gordon Research Conference)

2014

Faculty of 1000 poster prize winner
(Faseb Research Conference)

Conference attendance

2020 Calcium Signaling: Molecular Mechanisms to role in health and disease, Bangalore, India
2019 Calcium Signalling Conference, Fez, Morocco
2019 The Second Li River International Forum of Pharmaceutical Science (LRIFPS-2), Guilin, China
2019 COST meeting BM1406, Graz, Austria
2018 COST meeting BM1406, Dublin, Ireland
2017 Gordon Research Conference on Calcium Signaling, Barga, Italy
2016 Faseb Research Conference on Calcium Signaling, Lissabon, Portugal
2015 Gordon Research Conference on Calcium Signaling, Newry, USA
2014 Faseb Research Conference on Calcium Signaling, Nassau, Bahamas
Biophysical Society Meeting, San Francisco, USA
2013 Gordon Research Conference on Calcium Signaling, Barga, Italy
2012 Biophysical Society Meeting, San Diego, USA
2011 Biophysical Society Meeting, Baltimore, USA
2010 Biophysical Society Meeting, San Francisco, USA
2009 Biophysical Society Meeting, Boston, USA
2008 Biophysical Society Meeting, Long Beach, USA
NSI Meeting, Sankt Magdalena, Austria
2007 NSI Meeting, Feldkirchen, Austria
SFB530 Meeting, Homburg, Germany
Linz Winterworkshop, Linz, Austria
2006 NSI Meeting, Bad Ischl, Austria
2005 GEN-AU summer school, Litschau, Austria
2004 GEN-AU summer school, Litschau, Austria

Public outreach and media coverage

Quartaly newspaper **MTC connect** December 2016
Neue Immunproteinstruktur an der JKU entdeckt.

Daily newspaper **Kurier** 29.11.2017
Kalzium und Krebs: Forscher untersuchen Zusammenhang.

Daily newspaper **Die Presse** 17.03.2018
Kalziumtransporter an Krebsentstehung beteiligt.

Linz, August 2019

IRENE FRISCHAUF

PUBLICATIONS

Peer reviewed journal publications [impact factor]
* First authorship/equal contribution/corresponding author

Total publications: **32** (thereof **13** first author/equal contribution/corresponding author)

1. Lopez, E., Frischauf, I., Jardin, I., Derler, I., Muik, M., Cantonero, C., Salido, GM., Smani, T., Rosado, JA., Redondo, PC. (2019) STIM1 phosphorilation at Y^{316} modulates ist interaction with SARAF and the activation of SOCE and I_{CRAC}, J Cell Sci. [4,401]

2. Butorac, C., Muik, M., Derler, I., Stadlbauer, M., Lunz, V., Krizova, A., Lindinger, S., Schober, R., Frischauf, I., Bhardwaj, R., Hediger, M., Groschner, K., Romanin, C. (2019) A novel STIM1-Orai1 gating interface essential for CRAC channel activation, Cell Calcium [4,481]

3. * Lunz, V., Romanin, C., Frischauf, I. (2019) STIM1 activation of Orai1, Cell Calcium [4,481]

4. Fahrner, M., Pandey, S., Muik, M., Traxler, L., Butorac, C., Stadlbauer, M., Zayats, V., Krizova, A., Plenk, P., Frischauf, I., Schindl, R., Gruber, H., Hinterdorfer, P., Ettrich, R., Romanin, C., Derler, I. (2017) Communication between N-terminus and Loop2 tunes Orai activation, J. Biol. Chem. [5,117]

5. Derler, I., Butorac, C., Krizova, A., Stadlbauer, M., Muik, M., Fahrner, M., Frischauf, I., Romanin, C. (2017) Authentic CRAC channel activity requires STIM1 and the conserverd portion of the Orai N-terminus, J. Biol. Chem. [5,117]

6.* Frischauf, I., Litvinukova,M., Schober, R., Zayats, V., Svobodova, B., Bonhenry, D., Lunz, V., Capello, S., Tociu, l., Reha, D., Stallinger, A., Hochreiter, A., Pammer, T., Butorac, C., Muik, M., Groschner, K., Bogeski, I., Ettrich, R., Romanin, C., Schindl, R. (2017) Transmembrane helix connectivity in Orai1 controls two gates for calcium-dependent transcription, Sci Signal 10 (507) Cover Story [7,4]

7. Poteser, M., Leitinger, G., Pritz, E., Platzer, D., Frischauf, I., Romanin, C., Groschner, K. (2016) Live-cell imaging of ER-PM contact architecture by a novel TIRFM approach reveals extension of junctions in response to store-operated Ca2+ entry, Sci Rep [5,525]

8.* Frischauf, I., Fahrner, M., Jardin, I., Romanin, C. (2016) The STIM1:Orai Interaction, Adv Exp Med Biol 898 [1,953] ISBN: 978-3-319-26972-6

9.* Frischauf, I., Zayats, V., Deix, M., Hochreiter, A., Jardin, I., Muik, M., Lackner, B., Svobodova, B., Pammer, T., Litvinukova, M., Sridhar, AA., Derler, I., Bogeski, I., Romanin, C., Ettrich, RH., Schindl, R. (2015) A calcium-accumulating region, CAR, in the channel Orai1 enhances Ca2+ permeation and SOCE-induced gene transcription, Sci Signal 408 Cover Story [6,337]

10. Jardin, I., Dionisio, N., Frischauf, I., Berna-Erro, A., Woodard, G. E., Salido, G. M., and Rosado, J. A. (2013) The polybasic lysine-rich domain of plasma membrane-resident STIM1 is essential for the modulation of store-operated divalent cation entry by extracellular calcium, Cell Signal [4,305]

11. Schindl, R., Fritsch, R., Jardin, I., Frischauf, I., Kahr, H., Muik, M., Riedl, M. C., Groschner, K., and Romanin, C. (2012) Canonical transient receptor potential (TRPC) 1 acts as a negative regulator for vanilloid TRPV6 mediated Ca2+ influx, J Biol Chem [5,117]

12. Schleifer, H., Doleschal, B., Lichtenegger, M., Oppenrieder, R., Derler, I., Frischauf, I., Glasnov, T. N., Kappe, C. O., Romanin, C., and Groschner, K. (2012) Novel pyrazole compounds for pharmacological discrimination between receptor-operated and store-operated Ca(2+) entry pathways, Br J Pharmacol [4,409]

13. Muik, M., Fahrner, M., Schindl, R., Stathopulos, P., Frischauf, I., Derler, I., Plenk, P., Lackner, B., Groschner, K., Ikura, M., and Romanin, C. (2011) STIM1 couples to ORAI1 via an intramolecular transition into an extended conformation, Embo J 30, 1678-1689 [10,124]

14.* Frischauf, I., Schindl, R., Bergsmann, J., Derler, I., Fahrner, M., Muik, M., Fritsch, R., Lackner, B., Groschner, K., and Romanin, C. (2011) Cooperativeness of Orai cytosolic domains tunes subtype-specific gating, J Biol Chem 286, 8577-8584 [5,328]

15. Bergsmann, J., Derler, I., Muik, M., Frischauf, I., Fahrner, M., Pollheimer, P., Schwarzinger, C., Gruber, H. J., Groschner, K., and Romanin, C. (2011) Molecular determinants within N terminus of Orai3 protein that control channel activation and gating, J Biol Chem 286, 31565-31575 [5,328]

16. Reisinger, B., Fahrner, M., Frischauf, I., Yakunin, S., Svorcik, V., Fiedorowicz, H., Bartnik, A., Romanin, C., and Heitz, J. (2010) EUV micropatterning for biocompatibility control of PET, Appl Phys a-Mater 100, 511-516 [1,857]

17. Madl, J., Weghuber, J., Fritsch, R., Derler, I., Fahrner, M., Frischauf, I., Lackner, B., Romanin, C., and Schutz, G. J. (2010) Resting state Orai1 diffuses as homotetramer in the plasma membrane of live mammalian cells, The Journal of biological chemistry 285, 41135-41142 [5,328]

18.* Schindl, R., Frischauf, I., Bergsmann, J., Muik, M., Derler, I., Lackner, B., Groschner, K., and Romanin, C. (2009) Plasticity in Ca2+ selectivity of Orai1/Orai3 heteromeric channel, Proc Natl Acad Sci U S A 106, 19623-19628 [9,432]

19. Muik, M., Fahrner, M., Derler, I., Schindl, R., Bergsmann, J., Frischauf, I., Groschner, K., and Romanin, C. (2009) A Cytosolic Homomerization and a Modulatory Domain within STIM1 C Terminus Determine Coupling to ORAI1 Channels, J Biol Chem 284, 8421-8426 [5,328]

20.* Frischauf, I., Muik, M., Derler, I., Bergsmann, J., Fahrner, M., Schindl, R., Groschner, K., and Romanin, C. (2009) Molecular determinants of the coupling between STIM1 and Orai channels: differential activation of Orai1-3 channels by a STIM1 coiled-coil mutant, J Biol Chem 284, 21696-21706 [5,328]

21. Fahrner, M., Muik, M., Derler, I., Schindl, R., Fritsch, R., Frischauf, I., and Romanin, C. (2009) Mechanistic view on domains mediating STIM1-Orai coupling, Immunological reviews 231, 99-112 [10,050]

22. Derler, I., Fahrner, M., Carugo, O., Muik, M., Bergsmann, J., Schindl, R., Frischauf, I., Eshaghi, S., and Romanin, C. (2009) Increased hydrophobicity at the N terminus/membrane interface impairs gating of the severe combined immunodeficiency-related ORAI1 mutant, J Biol Chem 284, 15903-15915 [5,382]

23.* Schindl, R., Frischauf, I., Kahr, H., Fritsch, R., Krenn, M., Derndl, A., Vales, E., Muik, M., Derler, I., Groschner, K., and Romanin, C. (2008) The first ankyrin-like repeat is the minimum indispensable key structure for functional assembly of homo- and heteromeric TRPC4/TRPC5 channels, Cell Calcium 43, 260-269 [4,481]

24. Schindl, R., Bergsmann, J., Frischauf, I., Derler, I., Fahrner, M., Muik, M., Fritsch, R., Groschner, K., and Romanin, C. (2008) 2-aminoethoxydiphenyl borate alters selectivity of Orai3 channels by increasing their pore size, J Biol Chem 283, 20261-20267 [5,520]

25.* Rebollar, E., Frischauf, I., Olbrich, M., Peterbauer, T., Hering, S., Preiner, J., Hinterdorfer, P., Romanin, C., and Heitz, J. (2008) Proliferation of aligned mammalian cells on laser-nanostructured polystyrene, Biomaterials 29, 1796-1806 [6,646]

26.* Olbrich, M., Rebollar, E., Heitz, J., Frischauf, I., and Romanin, C. (2008) Electroporation chip for adherent cells on photochemically modified polymer surfaces, Appl Phys Lett 92 [3,726]

27.* Muik, M., Frischauf, I., Derler, I., Fahrner, M., Bergsmann, J., Eder, P., Schindl, R., Hesch, C., Polzinger, B., Fritsch, R., Kahr, H., Madl, J., Gruber, H., Groschner, K., and Romanin, C. (2008) Dynamic coupling of the putative coiled-coil domain of ORAI1 with STIM1 mediates ORAI1 channel activation, J Biol Chem 283, 8014-8022 [5,520]

28.* Frischauf, I., Schindl, R., Derler, I., Bergsmann, J., Fahrner, M., and Romanin, C. (2008) The STIM/Orai coupling machinery, Channels (Austin) 2, 261-268 [1,513]

29. Egginger, M., Irimia-Vladu, M., Schwodiauer, R., Tanda, A., Frischauf, I., Bauer, S., and Sariciftci, N. S. (2008) Mobile ionic impurities in poly(vinyl alcohol) gate dielectric: Possible source of the hysteresis in organic field-effect transistors, Adv Mater 20, 1018-+ [8,191]

30. Olbrich, M., Punshon, G., Frischauf, I., Salacinski, H. J., Rebollar, E., Romanin, C., Seifalian, A. M., and Heitz, J. (2007) UV surface modification of a new nanocomposite polymer to improve cytocompatibility, J Biomater Sci Polym Ed 18, 453-468 [1,862]

31. Heitz, J., Olbrich, M., Romanin, C., Frischauf, I., Svorcik, V., Kubova, O., and Peterbauer, T. (2006) Photochemical surface modification of polymers for biomedical applications - art. no. 62611I, P Soc Photo-Opt Ins 6261, I2611-I2611 [no impact factor available]

32.* Frischauf, I., Schindl, R., Romanin, C. (2012) Store-operated Ca^{2+} signalling: Structure, assembly and gating of CRAC channels, Review Fisiologia. ISSN: 1889-397X [no impact factor available]