

CURRICULUM VITAE

Mag^a. Riem Gawish, MSc. PhD

Waehringer Guertel 18-20

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PROFESSIONAL EXPERIENCE

Medical University of Vienna, Austria

since 09/2018

Elise Richter Fellow “Regulation of Alveolar Macrophage Functions by ADAR2 editing”

- Research focus: Editing in alveolar macrophages and its role in pulmonary immunity during SARS-CoV-2 and Pneumococcal pneumonia infection

Principal Investigator within the FWF funded young investigative researcher group “Adjusting the base - (Epi)transcriptomic RNA modification in inflammation & host-microbiome crosstalk”

- Research focus: RNA editing during lung infection and colitis, Adar2 mediated editing in alveolar macrophages and its role in innate immunity

Senior PostDoc, Sylvia Knapp Group, Laboratory of Infection Biology

- Research focus: SARS-CoV-2 and pneumococcal pneumonia, stress hematopoiesis and cytokine storm, immune modulation, RNA recognition and modification
- Project management and acquisition of third-party-funding
- Mentoring of PhD- and Diploma students, teaching activities

Maternity leave:

full break from 05/2021 – 09/2021, part time employment from 09/2021 – 02/2022 (10% FTE)

University of Veterinary Medicine, Vienna, Austria

10/2015 – 07/2018

PostDoc, Mathias Müller Group, Department of Biomedical Sciences

- Research focus: Herpes virus infection and hematopoiesis, sepsis, tissue damage and cytokine storm
- Mentoring of PhD- and Bachelor students, teaching activities

Educational leave to finish the Master Program “Innovation and Technology Management”:

part time employment from 07/2017 – 07/2018 (10% FTE)

Newcastle University, UK

04/2013 – 11/2013

Research associate, Derek Mann Group, Fibrosis Lab

- Research Focus: Liver failure, disease tolerance and tissue damage control during sepsis
- Training in immunohistochemistry and microscopy

Center for Molecular Medicine (CeMM) and Medical University of Vienna, Austria **10/2010 – 06/2015**

Pre-doctoral fellow, Sylvia Knapp Group, Laboratory of Infection Biology

- Research Focus: immune modulation during critical disease and sepsis, disease tolerance and tissue damage control during sepsis
- Acquisition of third-party-funding

Internships/Trainee at

07/2000 – 05/2009

- Cellmed Research GmbH (Krems, Austria)
- Technology review – Magazin für Innovation (Hannover, Germany)
- Austrian Agency for Health and Food Security – AGES (Vienna)
- Boehringer Ingelheim GmbH (Vienna)

EDUCATION**MSc Program - Innovation and Technology Management** 2016 – 2018*University of Applied Science, FH Technikum Vienna, Austria*

Master of Science (MSc), graduated with distinction, 05. 07. 2018, Special field: Social Innovation
 Master Thesis: CRISPR/Cas9: Technology acceptance and media coverage - Comparing Austria and Switzerland

PhD studies - FWF funded “Cell communication in health and disease” PhD program 2010 – 2015*Center for Molecular Medicine (CeMM) and Medical University of Vienna, Austria*

Doctor of Philosophy (PhD), graduated with distinction, 16. 06. 2015
 Doctoral Thesis: The role of triggering receptor expressed on myeloid cells-2 in Inflammation

Diploma studies - Molecular Biology 2003 – 2010*University of Vienna, Austria*

Diploma (Mag^a rer. nat.), graduated with distinction, 15. 11. 2010
 Diploma Thesis: The role of triggering receptor expressed on myeloid cells-2 in bacterial lung infection

Master Studies of Journalism and Content Management 2004 – 2005*University of Applied Sciences for management and Communication***Diploma studies - Philosophy** 2003 – 2005*University of Vienna, Austria***Technical High-School for Chemical Industry (HBLVA Rosensteingasse), Vienna** 1997 – 2003*Special field: Technology and environmental engineering*

Austrian Matura - university entrance diploma (graduated with distinction)

AWARDS AND FUNDING**FWF Elise Richter Fellowship V 1025-B** 2024

“Regulation of Alveolar Macrophage Functions by ADAR2 editing”. Role: PI

Funding period: 2024 – 2026,
 Total funding amount: 312.827,76 Euro

FWF Zukunftskolleg ZK57 2019

FWF funded young investigative researcher group “Adjusting the base – (Epi)transcriptomic RNA modification in inflammation & host-microbiome crosstalk” (www.meduniwien.ac.at/yirg-atb). Role: PI

Funding period: 2019 – 2023,
 Total funding amount: 1.338.268,14 Euro

- Travel Grant to present at the annual EMDS conference** **2016**
(Amsterdam, NL)
- L'ORÉAL UNESCO Award for Women in Science** **2014**
In cooperation between L'ORÉAL, the Austrian UNESCO commission and the Austrian Academy of Sciences (ÖAW), co-funded by the Austrian Ministry of Science, Research and Economy
Funding period: 2014 – 2015
Funding amount: 20.000 Euro
- Travel Grant to talk at the “IL-1 mediated inflammation and diabetes symposium”** **2013**
(PAO Heyendal, Radboud University, Nijmegen, the Netherlands)
- Boehringer Ingelheim Travel Grant - Newcastle University, UK** **2013**
3 Month funding
Funding amount: 3.000 Euro
- Best poster award** **2012**
Annual meeting of the Austrian Society of Immunology, Vienna

CARRER RELATED ACTIVITIES

Mentoring

Co-Supervision of PhD students:

- Lisabeth Pimenov (Medical University of Vienna), since 2020
- Florian Deckert (Medical University of Vienna), since 2019
- Asma Farhat (Medical University of Vienna), since 2018
- Federica Quattrone (Medical University of Vienna), 2018 – 2021
- Andrea Poelzl (University of Veterinary Medicine, Vienna), 2015 - 2018

Supervision of Diploma and Bachelor students:

- Master student, Elias Primerano (University of Vienna), since 2020
- Diploma student, Henriette Luise Horstmeier (Medical University of Vienna), since 2020
- Bachelor student, Luca Ferrarese (University of Veterinary Medicine of Vienna), 2017
- Bachelor student, Juliana Kornhoff (University of Veterinary Medicine, Vienna), 2016

Teaching

Medical University of Vienna, Austria

- Thesis Seminar: “Innate immunity – Dogmas and paradigm shifts” (LV860.015, 2 SSt. WS 2020/21)
- SSM3 Projektstudie (Wahlpflichtteil) – Lecture Series (LV808.008, 4 SSt in total, WS 2019/20)
- Thesis Seminar: “Innate immunity – Dogmas and paradigm shifts” (LV860.015, 2 SSt. WS 2019/20)

University of Veterinary Medicine, Vienna, Austria

- Infection Biology - Lecture Series, University of Veterinary Medicine, Vienna (LV500221, 0.25 SSt, SS 2016/17)
- Jak-Stat Signaling: from Basics to Disease - Journal Club, University of Veterinary Medicine, Vienna (LV500221, 0.5 ECTS, SS 2016/17)

Ad hoc Reviewer

- Co-reviewer for J Clin Invest and Blood
- Reviewer for FEBS and Frontiers in Immunology

SKILLS

Technical skills

- All standard methods in Molecular Biology and Immunology
- Special expertise in preclinical mouse infection models (bacterial sepsis, acute/chronic viral infection)
- Felasa B certificate and BSL3 training
- Cell sorting (BD FACSAria™ Cell Sorter Operator training)

IT knowledge:

- MS Office,
- statistics and data analysis (SPSS, Graphpad Prism)
- Adobe Illustrator und Photoshop

Languages:

- German (native)
- English (fluent)

EXTRACURRICULAR ACTIVITIES

Student speaker

at the FH Technikum Vienna

Vice student speaker

within the FWF funded CCHD PhD Program (Medical University of Vienna)

Organization of the 4th and 5th international “Bridging the Gap” Symposium

2011 and 2012 at the Medical University of Vienna (within the FWF funded CCHD PhD Program)

Memberships

- European Macrophage and Dendritic cell Society (EMDS)
- Austrian Society for Allergology and Immunology (ÖGAI)
- Austrian Society for Hematology and Oncology (OeGHO)

CONFERENCES, TALKS AND POSTER PRESENTATIONS

Oral presentation at the Keystone Conference **2023**

Inflammation in the Lung: Friend or Foe in Viral Infection

Title: Pathogen-specific modulation of AM responses in SARS-CoV-2 and pneumococcal pneumonia by ADAR2 (Utah, United States)

Invited talk at CEITEC, Mary O’Connell Research Group **2022**

Title: ADAR2 determines lung immunity by specifically regulating alveolar macrophage effector functions (Brno, Czech Republic)

Invited talk at the 5th Meeting of the Middle European Societies of Immunology and Allergology **2022**

Title: Immunological determinants of COVID-19 severity (Prague, Czech Republic)

Invited talk at the Max Planck Institute for Infection Biology **2021**

Title: Immunologic determinants of SARS-CoV-2 susceptibility and disease severity in mice (Virtual Seminar Series – New Voices in Infection Biology, Berlin, Germany)

- Oral presentation at the 6th European Congress of Immunology (ECI)** **2021**
 Title: Determinants of susceptibility in mice infected with mouse-adapted SARS-CoV-2
 (Hybrid Meeting, Belgrade, Serbia)
- Oral presentation at the 6th Immunology Research Cluster meeting** **2019**
 Title: Training for tolerance – A B cell/neutrophil axis regulates tissue tolerance during sepsis
 (Vienna, Austria)
- Oral presentation at the annual meeting of the Austrian Society of Immunology** **2019**
 Title: A B-cell/neutrophil axis orchestrates tolerance to severe sepsis
 (Graz, Austria)
- Oral presentation at the 8th International Shock Congress** **2016**
 Title: Mechanisms of Disease Tolerance to Gram(-) Sepsis
 (Tokyo, Japan)
- Poster presentation at the 30th annual EMDS conference** **2016**
 Title: Myeloid IFN signaling protects from murine CMV infection and promotes extramedullary hematopoiesis
 (Amsterdam, NL)
- Oral presentation at the 4th European Congress of Immunology (ECI)** **2015**
 Title: Mechanisms of Disease Tolerance to Gram(-) Sepsis
 (Vienna, Austria)
- Oral presentation at the CeMM Scientific Advisory Board meeting** **2014**
 Title: Mechanisms of Disease Tolerance in Gram(-) Sepsis
 (Center for Molecular Medicine, Vienna, Austria)
- Oral presentation at the “IL-1 mediated inflammation and diabetes” symposium** **2013**
 Title: The ambiguous role of TREM-2 in inflammation
 (Radboud University, Nijmegen, the Netherlands)
- Poster presentation at the 8th annual YSA PhD symposium** **2012**
 Title: The ambiguous role of triggering receptor expressed on myeloid cells-2 during sepsis
 (Medical University of Vienna, Austria)
- Poster presentation at the annual meeting of the Austrian Society of Immunology** **2012**
 Title: The ambiguous role of TREM-2 in *Escherichia coli* peritonitis
 (Vienna, Austria)
- Poster presentation at the Keystone Conference - Sensing the Microbes and Damage Signal** **2012**
 Title: *The ambiguous role of TREM-2 in Escherichia coli peritonitis*
 (Keystone, Colorado, US)
- Poster presentation at the 25th annual EMDS meeting** **2011**
 Title: The role of triggering receptor expressed on myeloid cells-2 in inflammation
 (Brussels, Belgium)
- Poster presentation at the 7th annual YSA PhD symposium** **2011**
 Title: The role of triggering receptor expressed on myeloid cells-2 in inflammation
 (Medical University of Vienna, Austria)

Participation at the 1st TranSVIR Workshop, Imaging the Immune System
(Vienna, Austria)

2011

PEER REVIEWED PUBLICATIONS

1. Jäger W, Kicker E, Hardt M, **Gawish R**, Gattinger P, Böhmendorfer M, Knapp S, Valenta R, Zatloukal K, Szekeres T
Identification of a Synthetic Polyhydroxyphenolic Resveratrol Analogue, 3,3',4,4',5,5'-Hexahydroxy-trans-Stilbene with Anti-SARS-CoV-2 Activity
Molecules. 2023, 28, 2612.

Shoemaker RH, Panettieri RA, Libutti SK, Hochster HS, Watts NR, Wingfield PT, Starkl P, Pimenov L, **Gawish R**, Hladik A, Knapp S, Boring D, White JM, Lawrence Q, Boone J, Marshall JD, Matthews RL, Cholewa BD, Richig JW, Chen BT, McCormick DL, Gugensberger R, Höller S, Penninger JM, Wirnsberger G
Development of an aerosol intervention for COVID-19 disease: Tolerability of soluble ACE2 (APN01) administered via nebulizer
PLoS One. 2022 Jul 11;17(7):e0271066.
2. **Gawish R**, Maier B, Obermayer G, Watzenboeck ML, Gorki AD, Quattrone F, Farhat A, Lakovits K, Hladik A, Korosec A, Alimohammadi A, Mesteri I, Oberndorfer F, Oakley F, Brain J, Boon L, Lang I, Binder CJ, Knapp S
A neutrophil-B-cell axis impacts tissue damage control in a mouse model of intraabdominal bacterial infection via Cxcr4
Elife. 2022 Sep 30;11:e78291.
3. Watzenböck M*, Gorki A-D*, Quattrone F*, **Gawish R***, Schwarz S*, Lambers C, Jaksch P, Lakovits K, Zahalka S, Rahimi N, Starkl P, Symmank D, Artner T, Pattaroni C, Fortelny N, Klavins K, Frommlet F, Marsland B, Hoetzenecker K, Widder S**, Knapp S**
(*/** equal contribution)
Multi-omics profiling predicts allograft function after lung transplantation
European respiratory journal. 2022 Feb. 3;59(2):2003292. doi: 10.1183/13993003.03292-2020
4. **Gawish R***, Starkl P*, Pimenov L, Hladik A, Lakovits K, Oberndorfer F, Cronin SJ, Ohradanova-Repic A, Wirnsberger G, Agerer B, Endler L, Capraz T, Perthold JW, Cikes D, Koglguber R, Hagelkruys A, Montserrat N, Mirazimi A, Boon L, Stockinger H, Bergthaler A, Oostenbrink C, Penninger JM, Knapp S
(* equal contribution)
ACE2 is the critical in vivo receptor for SARS-CoV-2 in a novel COVID-19 mouse model with TNF- and IFN γ -driven immunopathology
Elife. 2022 Jan 13;11:e74623.
5. Poelzl A, Lassnig C, Tangermann S, Hromadová D, Reichart U, **Gawish R**, Mueller K, Moriggl R, Linkermann A, Glösmann M, Kenner L, Mueller M, Strobl B
TYK2 licenses non-canonical inflammasome activation during endotoxemia
Cell Death Differ. 2021 Feb;28(2):748-763
6. Lang C, Jaksch P, Hoda MA, Lang G, Staudinger T, Tschernko E, Zapletal B, Geleff S, Prosch H, **Gawish R**, Knapp S, Robak O, Thalhammer F, Indra A, Koestenberger M, Strassl R, Klikevits T, Ali K, Fischer G, Klepetko W, Hoetzenecker K, Schellongowski P
Lung transplantation for COVID-19-associated acute respiratory distress syndrome in a PCR-positive patient
Lancet Respir Med. 2020 Oct;8(10):1057-1060.

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7. **Gawish R***, Bulat T*, Biaggio M*, Lassnig C, Bago-Horvath Z, Macho-Maschler S, Rom R, Amenitsch R, Ferrarese L, Kornhoff J, Lederer T, Krmpotić A, Jonjić S, Müller M** and Strobl B** (*/** equal contribution)
Macrophages restrict MCMV and drive stress-induced extramedullary hematopoiesis through STAT1
Cell Reports. 2019. Vol (26): 2394-2406.e5
8. Perrugoria MJ, Esparza-Baquer A, Oakley F, Labiano I, Korosec A, Jais A, Mann J, Tiniakos D, Santos-Laso A, Arbelaiz A, **Gawish R**, Sampedro A, Fontanellas A, Hijona E, Jiménez-Agüero R, Esterbauer H, Stoiber D, Bujanda L, Banales JM, Knapp S, Sharif O, Mann DA
Non-Parenchymal TREM-2 protects the Liver from Immune-mediated Hepatocellular damage
Gut. 2018. doi: 10.1136/gutjnl-2017-314107.
9. Kosack L*, **Gawish R***, Lercher A, Vilagos B, Bhattacharya A, Schliehe C, Mesteri I, Knapp S**, Bergthaler A** (*/** equal contribution).
The lipid-sensor TREM2 aggravates disease in a model of LCMV-induced hepatitis
Scientific Reports. 2017. Vol (7): Article number 11289
10. Martins R, Maier J, Gorki AD, Huber K, Sharif O, Starkl P, Saluzzo S, Quattrone F, **Gawish R**, Lakovits K, Aichinger M, Radic-Sarikas B, Lardeau CH, Hladik A, Korosec A, Brown M, Vaahtomeri K, Duggan M, Kerjaschki D, Esterbauer H, Colinge J, Eisenbarth SC, Decker T, Bennett K, Kubicek S, Sixt M, Superti-Furga G, and Knapp S
Heme drives hemolysis-induced susceptibility to infection via disruption of phagocyte functions
Nat Immunol. 2016. Vol (12):1361-1372
11. **Gawish R**, Wimberger T, Sharif O, Lakovits K, Doninger B, Knapp S.
Triggering receptor expressed on myeloid cells-2 fine-tunes inflammatory responses in murine Gram-negative sepsis.
FASEB 2015. Vol. 29(4): 1247-1257
12. Baumann CL, Heinz LX, Klein M, **Gawish R**, Shui G, Sharif O, Aspalter I, Müller AC, Blüml S, Kandasamy K, Breitwieser FP, Pichlmair A, Bruckner M, Karonitsch T, Fauster A, Hör S, Colinge J, Bennett KL, Knapp S, Wenk M and Superti-Furga G
The lipid-modifying enzyme SMPDL3B negatively regulates innate immunity
Cell Rep. 2015. Vol.11(12): 1919-28
13. Sharif O, **Gawish R**, Warszawska JM, Lakovits K, Doninger B, Schwarzenbacher R, Berg T, Kralovics R, Collinge J, Mesteri I, Gilfillan S, Salmaggi A, Colonna M and Knapp S
TREM-2 exerts detrimental effects during pneumococcal pneumonia by inhibiting C1q effector mechanisms
PloS Pathogens 2014. Vol. 10(6):e1004167
14. Warszawska JM, **Gawish R**, Sharif O, Sigel S, Doninger B, Lakovits K, Mesteri I, Nairz M, Boon L, Spiel A, Fuhrmann V, Strobl B, Müller M, Schenk P, Weiss G, Knapp S
Lipocalin 2 deactivates macrophages and worsens pneumococcal pneumonia outcomes
J Clin Invest 2013. Vol.123(8): 3363-3372
15. Matt U, Sharif O, Martins R, Furtner T, Langeberg L, **Gawish R**, Elbau I, Zivkovic A, Lakovits K, Oskolkova O, Doninger B, Vychytil A, Perkmann T, Schabbauer G, Binder CJ, Bochkov VN, Scott JD, Knapp S
WAVE1 mediates suppression of phagocytosis by phospholipid-derived DAMPs
J Clin Invest 2013. Vol.123(7): 3014-3024

MANUSCRIPTS UNDER REVISION

1. **Gawish R***, Varada R*, Deckert F, Hladik A, Lakovits K, Steinbichl L, Cimatti L, Milanovic K, Jain M, Torgasheva N, Tanzer A, De Paepe K, Van de Wiele T, Hausmann B, Lang M, Gasche C, Berry D, Knapp S, Jantsch M, Pereira FC, Vesely C
(* equal contribution)
Filamin A editing in immune cells reduces intestinal inflammation and protects from colitis
Under revision. JEM
2. Farhat A, Radhouani M, Deckert F, Zahalka S, Pimenov L, Hakobyan A, Fokina A, Hladik A, Lakovits K, Quattrone F, Boon L, Vesely C, Starkl P, Boucheron N, Menche J, Ellmeier W, Gorki AD, **Gawish R***, Knapp S*
(* equal contribution)
An ageing bone marrow exacerbates lung fibrosis via a dysregulated regulatory T cell driven axis, fuelling profibrotic macrophage persistence
Under revision. Science Immunology
3. Quattrone F, Martins R, Gorki AD, Hladik A, Lakovits K, Rebsamen M, Girardi Enrico, Alvarez-Hernandez A, Mayrhofer F, Farhat A, Watzenboeck ML, Van den Akker E, Von Lindern M, Superti-Furga G, Simonitsch-Klupp I, **Gawish R***, Knapp S*
(* equal contribution)
SLC20A1 facilitates heme transport and drives red pulp macrophage and erythrocyte differentiation
Under revision.

MANUSCRIPTS IN PREPARATION

1. Vesely C*, Deckert F*, Horstmeier HL, Hladik A, Lakovits K, ..., Jantsch MF, Knapp S, **Gawish R**
Adar2 is a novel regulator of alveolar macrophage antiviral effector functions during SARS-CoV-2 infection