Curriculum Vitae

Name & Address

Michael F. Jantsch – *Professor of Cell and Developmental Biology*
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Main Research Interests

We study the mechanisms and consequences of post transcriptional RNA modification, primarily those mediated by adenosine deaminases that act on RNA (ADARs). These enzymes deaminate adenosines to inosines in structured regions of RNAs. Inosines, in turn, are recognized as guanosines during translation, splicing, or folding. More than a million deamination editing sites are known in the human transcriptome. Mice lacking ADARs die prematurely and mutations in human ADARs are associated with Aicardi Goutières syndrome a severe interferonopathy. In our work we aim at understanding why lack of ADAR-mediated editing leads to elevated interferon signaling.

Scientific Education & Career History

2015-	Full Professor and Head of Unit, Medical University of Vienna
2006-2015	Head of Department, University of Vienna
2001	Habilitation in Genetics (assoc. Prof), University of Vienna
1993-2001	Assistant Prof. Dept. of Cell Biology and Genetics University of Vienna
1989-1993	Post Doc, Carnegie Institution of Washington, Baltimore, MD
1988	PhD in Biology, Univ Vienna

Experience in Scientific Management and Organization and PhD Student Supervision

Since 1993	Supervision and training of **15 Diploma (M.Sc.)** and **20 PhD students**
2005-2007	Member of the study section Biology
2005-2016	Department Head
2015	chair of the Gordon Research Conference on RNA editing and modification
2013	vice chair of the Gordon Research Conference on RNA editing and modification
2014 – date	Editorial board: RNA biology

Invited Conference Presentations (5 recent selected)

- 2016 – The epitranscriptome EMBO conference, EMBL
- 2016 – Nucleic acids and immunity Brno, Czech republic
- 2015 - Speaker at the Dept. of Biochemistry, Cambridge UK
- 2014 –Speaker at the RNA editing meeting in En Geidi, Israel
- 2013 - Plenary speaker at the GRC on RNA editing, Galveston, USA

Honors & Awards (5 selected)

1987 Austrian Ministry of Science Fellowship to Lübeck
1989-1992 Erwin Schrödinger Fellow of the Austrian Science Foundation FWF
1999 Novartis Prize for Biology, Novartis (Sandoz) Austria

Member of Reviewing Panels, Editorial Boards, Scientific Organizations (5 selected)

- Regular reviewing for

Science, Nature, Cell, Nat. Struct. Mol. Biol., EMBO J, Cell Rep., EMBO Rep., Nucl. Acids. Res., RNA, RNA Biol.,

Wellcome Trust, Swiss National Fund, European Research Council, DFG, Israeli Science Foundation

- Editorial Board member of *RNA Biology*
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Most Important Research Funding (selection of past 5 years)

Since the establishment of my own research group in 1993, I was able to finance my group through numerous peer-reviewed research grants from national (FWF, OENB) sources. The most relevant third-party support in the past five years include:

- 2017 – 2021, MOBILIS FWF/ANR - 220 k
- 2016 – 2019, FWF SFB43 RNA-REG (MFJ coordination) 620k
- 2017 – 2020, FWF – participation in doctoral program RNA Biology (FWF) 110 k€
- 2014 – 2017, FWF Impact of edting on splicing 342 k€
- 2014 – 2017, FWF Impact of splicing on editing 320 k€

Key International Collaborators (selection of 5 with joint publications since 2012)

- **Marie Öhman** Stockholm University, Stockholm, Sweden
- **Mary O Connell** Ceitec, Brno Czech Republic
- **Frederic Allain** ETH Zürich, Switzerland
- **Prasanth Katanangattu** Univ Urbana Champaign, Illinois
- **Erez Levanon** Bar Ilan University Israel

List of Publications (2011 - 2016)

Tajaddod M, Tanzer A, Licht K, Wolfinger MT, Badelt S, Huber F, et al. Transcriptome-wide effects of inverted SINEs on gene expression and their impact on RNA polymerase II activity. Genome Biol 2016; 17:220.

Tajaddod M, Jantsch MF, Licht K. The dynamic epitranscriptome: A to I editing modulates genetic information. Chromosoma 2016; 125:51-63.

Licht K, Kapoor U, Mayrhofer E, Jantsch MF. Adenosine to Inosine editing frequency controlled by splicing efficiency. Nucleic Acids Res 2016; 44:6398-408.

Licht K, Jantsch MF. Rapid and dynamic transcriptome regulation by RNA editing and RNA modifications. The Journal of cell biology 2016; 213:15-22.

Daryabeigi A, Woglar A, Baudrimont A, Silva N, Paouneskou D, Vesely C, et al. Nuclear Envelope Retention of LINC Complexes Is Promoted by SUN-1 Oligomerization in the Caenorhabditis elegans Germ Line. Genetics 2016; 203:733-48.

Anantharaman A, Jadaliha M, Tripathi V, Nakagawa S, Hirose T, Jantsch MF, et al. Paraspeckles modulate the intranuclear distribution of paraspeckle-associated Ctn RNA. Sci Rep 2016; 6:34043.

Barraud, P., S. Banerjee, W.I. Mohamed, M.F. Jantsch, and F.H. Allain. 2014. A bimodular nuclear localization signal assembled via an extended double-stranded RNA-binding domain acts as an RNA-sensing signal for transportin 1. Proc Natl Acad Sci U S A. 111:E1852-1861.

Mannion, N.M., S.M. Greenwood, R. Young, S. Cox, J. Brindle, D. Read, C. Nellaker, C. Vesely, C.P. Ponting, P.J. McLaughlin, M.F. Jantsch, J. Dorin, I.R. Adams, A.D. Scadden, M. Ohman, L.P. Keegan, and M.A. O'Connell. 2014. The RNA-editing enzyme ADAR1 controls innate immune responses to RNA. Cell reports. 9:1482-1494.

Muggenhumer, D., C. Vesely, S. Nimpf, N. Tian, J. Yongfeng, and M.F. Jantsch. 2014. Drosha protein levels are translationally regulated during Xenopus oocyte maturation. Mol Biol Cell. 25:2094-2104.

Vesely, C., S. Tauber, F.J. Sedlazeck, M. Tajaddod, A. von Haeseler, and M.F. Jantsch. 2014. ADAR2 induces reproducible changes in sequence and abundance of mature microRNAs in the mouse brain. Nucleic Acids Res. 42:12155-12168.

Jantsch, M.F. (2013). Editing the flow of information. RNA Biol 10.

Tariq, A., Garncarz, W., Handl, C., Balik, A., Pusch, O., and Jantsch, M.F. (2013). RNA-interacting proteins act as site-specific repressors of ADAR2-mediated RNA editing and fluctuate upon neuronal stimulation. Nucleic Acids Res 41, 2581-2593.

Stulic, M., and Jantsch, M.F. (2013). Spatio-temporal profiling of Filamin A RNA-editing reveals ADAR preferences and high editing levels outside neuronal tissues. RNA Biol 10.

Garncarz, W., Tariq, A., Handl, C., Pusch, O., and Jantsch, M.F. (2013). A high-throughput screen to identify enhancers of ADAR-mediated RNA-editing. RNA Biol 10, 192-204.

Tariq, A., and Jantsch, M.F. (2012). Transcript diversification in the nervous system: a to I RNA editing in CNS function and disease development. Front Neurosci 6, 99.

Vesely, C., Tauber, S., Sedlazeck, F.J., von Haeseler, A., and Jantsch, M.F. (2012). Adenosine deaminases that act on RNA induce reproducible changes in abundance and sequence of embryonic miRNAs. Genome Res 22, 1468-1476.

Tian, N., Yang, Y., Sachsenmaier, N., Muggenhumer, D., Bi, J., Waldsich, C., Jantsch, M.F., and Jin, Y. (2011). A structural determinant required for RNA editing. Nucleic Acids Res 39, 5669-5681.

10 Most Important Career Publications (as first or corresponding author)

Barraud, P., Banerjee, S., Mohamed, W.I., Jantsch, M.F., and Allain, F.H.T. (2014). A bimodular nuclear localization signal assembled via an extended double-stranded RNA-binding domain acts as an RNA-sensing signal for transportin 1. Proceedings of the National Academy of Sciences.

Tariq, A., Garncarz, W., Handl, C., Balik, A., Pusch, O., and Jantsch, M.F. (2013). RNA-interacting proteins act as site-specific repressors of ADAR2-mediated RNA editing and fluctuate upon neuronal stimulation. Nucleic Acids Res 41, 2581-2593.

Vesely, C., Tauber, S., Sedlazeck, F.J., von Haeseler, A., and Jantsch, M.F. (2012). Adenosine deaminases that act on RNA induce reproducible changes in abundance and sequence of embryonic miRNAs. Genome Res 22, 1468-1476.

Fritz, J., Strehblow, A., Taschner, A., Schopoff, S., Pasierbek, P., and Jantsch, M.F. (2009). RNA-regulated interaction of transportin-1 and exportin-5 with the double-stranded RNA-binding domain regulates nucleocytoplasmic shuttling of ADAR1. Mol Cell Biol 29, 1487-1497.

Levanon, E.Y., Hallegger, M., Kinar, Y., Shemesh, R., Djinovic-Carugo, K., Rechavi, G., Jantsch, M.F., and Eisenberg, E. (2005). Evolutionarily conserved human targets of adenosine to inosine RNA editing. Nucleic Acids Res 33, 1162-1168.

Levanon, E.Y., Eisenberg, E., Yelin, R., Nemzer, S., Hallegger, M., Shemesh, R., Fligelman, Z.Y., Shoshan, A., Pollock, S.R., Sztybel, D., et al. (2004). Systematic identification of abundant A-to-I editing sites in the human transcriptome. Nat Biotechnol 22, 1001-1005.

Doyle, M., and Jantsch, M.F. (2003). Distinct in vivo roles for double-stranded RNA-binding domains of the Xenopus RNA-editing enzyme ADAR1 in chromosomal targeting. The Journal of cell biology 161, 309-319.

Eckmann, C.R., and Jantsch, M.F. (1999). The RNA-editing enzyme ADAR1 is localized to the nascent ribonucleoprotein matrix on Xenopus lampbrush chromosomes but specifically associates with an atypical loop. Journal of Cell Biology 144, 603-615.

Eckmann, C.R., and Jantsch, M.F. (1997). Xlrbpa, a double-stranded RNA-binding protein associated with ribosomes and heterogeneous nuclear RNPs. The Journal of cell biology 138, 239-253.

St Johnston, D., Brown, N.H., Gall, J.G., and Jantsch, M. (1992). A conserved double-stranded RNA-binding domain. Proc Natl Acad Sci U S A 89, 10979-10983.