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## BIOGRAPHICAL SKETCH

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NAME <b>Eckhard Jankowsky</b>	POSITION TITLE <b>Professor</b>
eRA COMMONS USER NAME	

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EDUCATION/TRAINING *(Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.)*

INSTITUTION AND LOCATION	DEGREE <i>(if applicable)</i>	YEAR(s)	FIELD OF STUDY
Dresden Inst. Technology, Dresden, Germany	M.S.	1988-1993	Chemistry
Dresden Inst. Technology, Dresden, Germany	Ph.D.	1993-1996	Chemistry / Biochemistry
Columbia University, New York, NY	Post-doc	1997-2000	Biochemistry
Stanford University, Stanford, CA	Visiting Scholar	2000-2001	Physics / Biophysics

### Positions and Honors

#### Positions and Employment

- 1992 - 1993 Undergraduate Researcher,  
Institute of Wood and Plant Chemistry, Tharandt, Germany
- 1993 - 1996 Graduate Research Assistant,  
Department of Biochemistry, Dresden University of Technology, Dresden, Germany
- 1997 - 2000 Postdoctoral Research Fellow,  
Department of Biochemistry and Mol. Biophysics, Columbia University, New York, NY
- 2000 - 2001 Visiting Scholar,  
Department of Physics, Stanford University, Stanford, CA
- 2000 - 2009 Assistant Professor / Associate Professor (2009)  
Department of Biochemistry, School of Medicine,  
Case Western Reserve University, Cleveland, OH
- 2010 - Associate Professor / Professor (2012)  
Center for RNA Molecular Biology, School of Medicine,  
Case Western Reserve University, Cleveland, OH.  
Secondary Appointments: Departments of Biochemistry and Physics

#### Honors and Awards

- 1996 Dissertation with *Summa cum laude*
- 1997 Curt Engelhorn Postdoctoral Fellowship (awarded by the German Cancer Research Center)
- 2003 Damon Runyon Scholar Award (*Lallage Feazel Wall Scholar*)
- 2007 Burroughs Wellcome Investigator Award  
*Investigator in the Pathogenesis of Infectious Diseases*

## Publications

- 49 Putnam AA & **Jankowsky E**: "Analysis of duplex unwinding by RNA helicases using stopped-flow fluorescence spectroscopy." *Meth. Enzymol.* **511**, 1-27 (2012)
- 48 Jia H, Yang X, Anderson JT & **Jankowsky E**: "RNA unwinding by the Trf4/Air2/Mtr4 Polyadenylation (TRAMP) complex." *Proc. Natl. Acad. Sci. USA* **109**, 7292-7297 (2012)
- 47 Fairman-Williams ME & **Jankowsky E**: "Unwinding initiation by the viral RNA helicase NPH-II." *J. Mol. Biol.* **415**, 819-832 (2012)
- 46 Hilliker A, Gao Z, **Jankowsky E** & Parker R. "The DEAD-box protein Ded1 modulates translation by formation and resolution of an eIF4F-mRNA complex." *Mol. Cell* **43**, 962-972 (2011)
- 45 Linder P & **Jankowsky E**: "From clamping to unwinding: the DEAD-box RNA helicase family." (Review) *Nature Rev. Mol. Cell Biol.* **12**, 505-516 (2011)
- 44 Jia H, Wang X, Liu F, Guenther UP, Srinivasan S, Anderson JT & **Jankowsky E**: "The RNA helicase Mtr4p modulates polyadenylation in the TRAMP complex." *Cell* **145**, 890-901 (2011)
- 43 Jankowsky A, Guenther UP & **Jankowsky E**: "The RNA helicase database." *Nucleic Acids Res.* **39**, D338-341 (2011)
- 42 **Jankowsky E**: "RNA Helicases at work: binding and rearranging." (Review) *Trends Biochem. Sci. (TiBS)* **36**, 19-29 (2011)
- 41 **Jankowsky E** & Fairman-Williams ME "An Introduction to RNA helicases: Superfamilies, Families, and Major Themes." in: Jankowsky E (ed.) "RNA helicases", *RSC Biomolecular Series* **19**, 1-31, RSC, London (2010)
- 40 Fairman-Williams ME & **Jankowsky E** "Viral DExH Proteins." in: Jankowsky E (ed.) "RNA helicases", *RSC Biomolecular Series* **19**, 168-188, RSC, London (2010)
- 39 Fairman-Williams ME, Guenther UP & **Jankowsky E**: "SF1 and SF2 Helicases: Family Matters." (Review) *Curr. Opin. Struct. Biol.* **20**, 313-324 (2010)
- 38 **Jankowsky E** & Putnam A: "Duplex unwinding with DEAD-box proteins." in: Abdelhaleem M. (ed) "Helicases", *Meth. Mol. Biol.* **587**, 245-264 (2009)
- 37 Guenther UP & **Jankowsky E**: "Helicase Multitasking in Ribosome Assembly." (Preview) *Mol. Cell* **36**, 537-538 (2009)
- 36 Kaye N, Emmett KJ, Merrick WC & **Jankowsky E**: "Intrinsic RNA binding by the eukaryotic initiation factor 4F depends on a minimal RNA length, but not on the m<sup>7</sup>G cap." *J. Biol. Chem.* **284**, 17742-17750 (2009)
- 35 Del Campo M, Mohr S, Jiang Y, Jia H, **Jankowsky E** & Lambowitz AM: "Unwinding by local strand separation is critical for the function of DEAD-box proteins as RNA chaperones" *J. Mol. Biol.* **389**, 674-693 (2009)
- 34 Liu F, Putnam A & **Jankowsky E**: "ATP hydrolysis is required for DEAD-box protein recycling but not for duplex unwinding" *Proc. Natl. Acad. Sci. U.S.A.* **105**, 20209-20214 (2008)

- 33 Yu Y, Maroney PA, Denker J, Zhang XHF, Dybkov O, Lührmann R, **Jankowsky E**, Chasin L & Nilsen TW: "Dynamic Regulation of Alternative Splicing: Selection of Silencers that Strongly Modulate 5' Splice Site Choice by Affecting Splice Site Competition." **Cell** **135**, 1224-1236 (2008)
- 32 **Jankowsky E** & Fairman ME: "Duplex unwinding and RNP remodeling with RNA helicases" in: Lin, R.J. (ed) RNA-Protein Interactions, **Meth. Mol. Biol.** **488**, 343-355, Humana Press (2008)
- 31 Jennings TA, Chen Y, Sikora D, Harrison MK, Sikora B, Huang L, **Jankowsky E**, Fairman ME, Cameron CE, Raney KD: "RNA Unwinding Activity of the Hepatitis C Virus NS3 Helicase is Modulated by the NS5B Polymerase" **Biochemistry** **47**, 1126-1135 (2008)
- 30 Mohr G, Del Campo M, Mohr S, Yang Q, Jia H, **Jankowsky E** & Lambowitz AM: "Function of the C-terminal domain of the DEAD-box protein Mss116p analyzed in vivo and in vitro" **J. Mol. Biol.** **375**, 1344-1364 (2008)
- 29 Wang X, Jia H, **Jankowsky E** & Anderson JT: "Degradation of hypomodified tRNA<sub>i</sub><sup>Met</sup> in vivo involves RNA-dependent ATPase activity of the DExH helicase Mtr4p" **RNA** **14**, 107-116 (2008)
- 28 Yang Q, Del Campo M, Lambowitz AM & **Jankowsky E**: "DEAD-box proteins unwind duplexes by local strand separation" **Mol. Cell** **28**, 253-264 (2007)
- 27 **Jankowsky E**: "Indifferent Chaperones" (News & Views) **Nature** **440**, 999-1000 (2007)
- 26 Del Campo M, Tijerina P, Bhaskaran H, Mohr S, Yang Q, **Jankowsky E**, Russell R & Lambowitz AM: "Do DEAD-box proteins promote group-II intron splicing without unwinding RNA?" **Mol. Cell** **28**, 159-166 (2007)
- 25 **Jankowsky E** & Fairman ME: "RNA helicases – one fold for many functions." (Review) **Curr. Opin. Struct. Biol.** **17**, 316-324 (2007)
- 24 Yang Q, Fairman ME & **Jankowsky E**: "DEAD-box protein assisted RNA structure conversion towards and against thermodynamic equilibrium values." **J. Mol. Biol.** **368**, 1087-1100 (2007)
- 23 Halls C, Mohr S, Del Campo M, Yang Q, **Jankowsky E** & Lambowitz, A.M.: "Involvement of DEAD-box proteins in group I and II intron splicing. Biochemical characterization of Mss116p, ATP-hydrolysis-dependent and -independent mechanisms, and general RNA chaperone activity." **J. Mol. Biol.** **365**, 835-855 (2007)
- 22 Yang Q & **Jankowsky E**: "The DEAD-box protein DED1 unwinds RNA duplexes by a mode distinct from translocating helicases." **Nature Struct. Mol. Biol.** **13**, 4181-4188 (2006)
- 21 **Jankowsky E** & Bowers HA: "Remodeling of ribonucleoprotein complexes by DEXH/D proteins." (Review) **Nucleic Acids Res.** **34**, 4181-4188 (2006)
- 20 Bowers HA, Maroney PA, Fairman ME, Kastner B, Lührmann R, Nilsen TW & **Jankowsky E**: "Discriminatory RNP remodeling by the DEAD-box protein DED1." **RNA** **12**, 903-912 (2006)
- 19 Beran RKF, Bruno MM, Bowers HA, **Jankowsky E** & Pyle AM: "Robust translocation along a molecular monorail: the NS3 helicase from Hepatitis C Virus traverses unusually large disruptions in its track." **J. Mol. Biol.** **358**, 974-982 (2006)
- 18 **Jankowsky E**, Fairman ME & Yang Q: "RNA helicases: versatile ATP-driven nanomotors." (Review) **J. Nanosci. Nanotechnol.** **5**, 1983-1989 (2005)

- 17 **Jankowsky E**: "Helicase snaps back." (News and Views) *Nature* **437**, 1245 (2005)
- 16 Yang Q & **Jankowsky E**: "ATP- and ADP-Dependent Modulation of RNA Unwinding and Strand Annealing Activities by the DEAD-Box Protein DED1." *Biochemistry* **44**, 13591-13601 (2005)
- 15 Bordeleau ME, Matthews J, Wojnar JM, Lindqvist L, Novac O, **Jankowsky E**, Sonenberg N, Northcote P, Teesdale-Spittle P & Pelletier J: "Stimulation of mammalian translation initiation factor eIF4A activity by a small molecule inhibitor of eukaryotic translation." *Proc. Natl. Acad. Sci. U.S.A.* **102**, 10460-10465 (2005)
- 14 Pang PS, **Jankowsky E**, Wadley LM, Pyle AM: "Prediction of functional tertiary interactions and intermolecular interfaces from primary sequence data." *J. Exp. Zool. B Mol. Dev. Evol.* **304**, 50-63 (2005)
- 13 Fairman ME, Maroney P, Wang W, Bowers H, Gollnick P, Nilsen, TW & **Jankowsky E**: "Protein displacement by DExH/D "RNA helicases" without duplex unwinding." *Science* **304**, 730-734 (2004)
- 12 Kawaoka J, **Jankowsky E** & Pyle AM: "Backbone tracking by the SF2 RNA helicase NPH-II." *Nature Struct. Mol. Biol.* **11**, 526-530 (2004)
- 11 Pang PS, **Jankowsky E**, Planet PJ & Pyle AM: "The hepatitis C viral NS3 protein is a processive DNA helicase with cofactor enhanced RNA unwinding." *EMBO J.* **21**, 1168-1176 (2002)
- 10 Kang DC, Gopalkrishnan RV, Wu Q, **Jankowsky E**, Pyle AM & Fisher PB: "Mda-5: An interferon-inducible putative RNA helicase with double-stranded RNA-dependent ATPase activity and melanoma growth-suppressive properties." *Proc. Natl. Acad. Sci. U.S.A* **99**, 637-642 (2002)
- 9 **Jankowsky E**, Gross CH, Shuman S & Pyle AM: "Active disruption of an RNA-protein interaction by a DExH/D RNA helicase." *Science* **291**, 121-125 (2001).
- 8 **Jankowsky E**, Gross CH, Shuman S & Pyle AM: "The DExH protein NPH-II is a processive and directional motor for unwinding RNA." *Nature* **403**, 447-451 (2000)
- 7 **Jankowsky E** & Jankowsky A: "The DExH/D protein family database." *Nucleic Acids Res.* **28**, 333-334 (2000)
- 6 Pyle AM, Chu VT, **Jankowsky E** & Boudvillain M: "Using DNazymes to cut, process, and map RNA molecules for structural studies or modification." (Methods, Protocols) *Meth. Enzymol.* **317**, 140-146 (2000).
- 5 Wagner JD, **Jankowsky E**, Company M, Pyle AM & Abelson JN: "The DEAH-box protein PRP22 is an ATPase that mediates ATP-dependent mRNA release from the spliceosome and unwinds RNA duplexes." *EMBO J.* **17**, 2926-2937 (1998)
- 4 **Jankowsky E** & Schwenzler B: "Oligonucleotide facilitators enable a hammerhead ribozyme to cleave long RNA substrates with multiple-turnover activity." *Eur. J. Biochem.* **254**, 129-134 (1998)
- 3 **Jankowsky E**, Strunk G & Schwenzler B: "Peptide nucleic acid (PNA) is capable of enhancing hammerhead ribozyme activity with long but not with short RNA substrates." *Nucleic Acids Res.* **25**, 2690-2693 (1997)

- 2 **Jankowsky E** & Schwenzer B: "Efficient improvement of hammerhead ribozyme mediated cleavage of long substrates by oligonucleotide facilitators." *Biochemistry* **35**, 15313-15321 (1996)
- 1 **Jankowsky E** & Schwenzer B: "Oligonucleotide facilitators may inhibit or activate a hammerhead ribozyme." *Nucleic Acids Res.* **24**, 423-429 (1996)

**Books edited:**

**Jankowsky E** (ed.) "RNA helicases", *RSC Biomolecular Series 19*, Royal Society of Chemistry, London (2010) ISBN 978-1-84755-914-2

**Jankowsky E** (ed.) "RNA helicases: analysis of molecular mechanisms and cellular functions." *Methods in Enzymology* **512** (2012)