

Curriculum Vita

James R. Paulson

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Education:

Princeton University	1972-1976	Ph.D., Biochemical Sciences, 1977
Princeton University	1968-1972	A.B., Summa cum Laude, Mathematics, 1972

Professional Experience:

University of Wisconsin Oshkosh	1995-present	Professor of Chemistry Adjunct Professor of Biology/Microbiology
University of Edinburgh, Scotland	2007-2008	Visiting Scientist
ISREC (Institut Suisse de Recherche Expérimentale sur la Cancer), Epalinges, Switzerland)	2001	Visiting Scientist
University of Cambridge, U.K.	1993	Visiting Scientist, Department of Biochemistry
University of Wisconsin Oshkosh	1989-1995	Associate Professor of Chemistry Adjunct Assoc. Prof. Biology/Microbiology
University of Wisconsin Oshkosh	1984-1989	Assistant Professor of Chemistry Adjunct Asst. Prof. Biology/Microbiology
St. Olaf College	1982-1983	Assistant Professor of Chemistry
University of Michigan, Biophysics Research Division	1982	Postdoctoral Fellow
MRC Lab. of Molecular Biology Cambridge UK	1977-1981	Postdoctoral Fellow
Princeton University, Department of Biochemical Sciences	1976-1977	Postdoctoral Fellow

Awards and Honors:

2015	Edward M. Penson Distinguished Teaching Award, University of Wisconsin Oshkosh
2011-2015	University of Wisconsin Oshkosh F. John Barlow Endowed Professorship
2008	Named Distinguished Professor of Chemistry, University of Wisconsin Oshkosh
1997-2001	University of Wisconsin Oshkosh TRISS Endowed Professorship
1999	Phillips Electron Microscope Co. (FEI subsidiary), 50 th Anniversary Image Contest
1995	John McNaughton Rosebush University Professorship, UW Oshkosh
1984	Elected to Sigma Xi
1980-81	NATO Postdoctoral Fellow
1979-80	National Institutes of Health Postdoctoral Fellow
1977-79	Fellow of the Jane Coffin Childs Memorial Fund for Medical Research
1976-77	Fellow in Cancer Research of the Damon Runyon - Walter Winchell Fund
1972-75	National Science Foundation Graduate Fellowship
1972	A.B. Summa cum laude, Princeton University

Published Articles and Reviews (* indicates UW-Oshkosh student coauthor):

43. *Keaton, J.M., *Workman, B.G., Xie, L. and Paulson, J.R., Exit from mitosis in budding yeast: Requirement for Protein Phosphatase 1 downstream from Cdk1 inactivation. In preparation.
42. Paulson, J.R., *Kresch, A.K., and Mesner, P.W., (2016) Moderate hyperthermia induces apoptosis in metaphase-arrested cells but not in interphase HeLa cells. *Advances in Biological Chemistry* 6: 126-139.
41. Al-Bahry, S.N., Mahmoud, I.Y., Al-Musharafi, S.K. and Paulson, J.R. (2016) Antibiotic resistant bacteria in the environment as bio-indicators of pollution. *The Open Biotechnology Journal* 10 (Suppl. 2, M7): 342-351.
40. Zhang, T., Paulson, J.R., Bakhrebah, M., Kim, J.H., Nowell, C., Kalitsis, P., and Hudson, D.F. (2016) Condensin I and II behavior in interphase nuclei and cells undergoing premature chromosome condensation. *Chromosome Research*, 24 (2): 243-269.
39. Paulson, J.R., Isolation of mitotic chromosomes from HeLa and other cells: Contributions to understanding chromosome biology. In *Advances in Medicine and Biology*, Vol. 95, L.V. Bernhardt, ed., Nova Science Publishers, Hauppauge, NY, pp. 1-23.
38. Al-Bahry, S.N., Mahmoud, I.Y., Al-Musharafi, S.K. and Paulson, J.R. (2015). Consumption of contaminated eggs: A public health concern. *Medical Research Archives*, 2 (4): 1-22.
37. Al-Bahry, S.N., Mahmoud, I.Y., Paulson, J.R. and Al-Musharafi, SK. (2015). Survival and growth of antibiotic resistant bacteria in treated wastewater and water distribution systems and their implication in human health: A review. *International Arabic Journal of Antimicrobial Agents*. 4 (No. 4), 1-11. doi: 10.3823/758.
36. Al-Bahry, S.N., Mahmoud, I.Y., Paulson, J.R. and Al-Musharafi, S.K. (2015). Antibiotic resistant bacteria in terrestrial and aquatic environments: A review. *International Arabic Journal of Antimicrobial Agents*. 4 (No. 2/3), 1-11. doi: 10.3823/754.
35. Paulson, J.R. and *Vander Mause, E.R. (2013). Calyculin A induces prematurely condensed chromosomes without histone H1 phosphorylation in mammalian G1-phase cells. *Advances in Biological Chemistry* 3, 36-43.
34. Cadou, A., Couturier, A., Le Goff, C., Xie, L., Paulson, J.R. and Le Goff, X. (2013). The Kin 1 kinase and the calcineurin phosphatase cooperate to link actin ring assembly and septum synthesis in fission yeast. *Biology of the Cell* 105, 1-20.
33. Al-Bahry, S., Mahmoud, I., Al-Rawahi, S. and Paulson, J.R. (2011). Egg contamination as an indicator of environmental health. In *Eggs: Nutrition, Consumption and Health*, W. Segil, H. Zou, eds., Nova Science Publishers, Hauppauge, NY, pp. 1-24.
32. Paulson, J.R. and Vagnarelli, P. (March 2011). Chromosomes and Chromatin. In: *Encyclopedia of Life Sciences (ELS)*. John Wiley & Sons, Ltd: Chichester, UK. DOI: 10.1002/9780470015902.a0005766.pub2
31. Cadou, A, Couturier, A., Le Goff, C., Soto, T., Miklos, I., Sipiczki, M., Xie, L., Paulson, J.R., Cansado, J. and Le Goff, X. (2010). Kin1 is a plasma membrane-associated kinase that regulates the cell surface in fission yeast. *Molec. Microbiol.* 77, 1186-1202.
30. *Patzlaff, J.S., Terrenoire, E., Turner, B.M, Earnshaw, W.C. and Paulson J.R. (2010). Acetylation of core histones in response to HDAC inhibitors is diminished in mitotic HeLa cells. *Exp. Cell Research* 316, 2123-2135.
29. Dischinger, S., Krapp, A., Xie, L., Paulson, J.R. and Simanis, V. (2008). Chemical genetic analysis of the regulatory role of Cdc2p in the *S. pombe* septation initiation network. *J. Cell Science* 121, 843-853.

28. Paulson, J.R. (2007). Inactivation of Cdk1/Cyclin B in metaphase-arrested mouse FT210 cells induces exit from mitosis without chromosome segregation or cytokinesis and allows passage through another cell cycle. *Chromosoma* 116, 215-225.
27. Mahmoud, I.Y., Paulson, J.R., *Dudley, M., *Patzlaff, J.S. and Al-Kindi, A.Y.A. (2004). Secretory proteins in the reproductive tract of the snapping turtle, *Chelydra serpentina*. *Comp. Biochem. Physiol. Part A*, 139, 487-494.
26. *Kecskeméti, A.A., Paulson, J.R. and Mesner, P.W. (2002). Specific Induction of Apoptosis in Metaphase-Arrested HeLa Cells by Mild Hyperthermia. *Proc. National Conf. Undergraduate Research (NCUR) 2002*, University of Wisconsin-Whitewater, April 25-27, 2002.
25. Paulson, J.R. and Laemmli, U.K. (2000). The structure of histone-depleted metaphase chromosomes. In *Landmark Papers in Cell Biology: Celebrating Forty Years of the American Society for Cell Biology*, Eds Joseph G. Gall and J. Richard McIntosh, Cold Spring Harbor Laboratory Press, Cold Spring Harbor, NY. (Reprinted from *Cell* 12, 817-828 (1977)).
24. Berger, B., Hoest, G.W., Paulson, J.R., and Shor, P.W. (1999). On the structure of the scaffolding core of bacteriophage T4. *J. Computational Biol.* 6, 1-12.
23. Paulson, J.R. and *Higley, L.L. (1999). Acid-urea slab gel electrophoresis of proteins: Preventing distortion of gel wells during preelectrophoresis. *Analytical Biochem.* 268, 157-159.
22. Paulson, J.R., *Patzlaff, J.S. and *Vallis, A. J. (1996). Evidence that the endogenous histone H1 phosphatase in HeLa mitotic chromosomes is protein phosphatase 1, not protein phosphatase 2A. *J. Cell Science* 109, 1437-1447.
21. Paulson, J.R., *Ciesielski, W.A., *Schram, B.R., and *Mesner, P.W. (1994). Okadaic acid induces dephosphorylation of histone H1 in metaphase-arrested HeLa cells. *J. Cell Science* 107, 267-273.
20. Paulson, J.R. and Moore, R.E. (1993). Characterization of proteins in coated papers by SDS-polyacrylamide gel electrophoresis. *TAPPI J. (Tech. Assoc. Pulp Paper Ind.)* 76, 102-104.
19. Paulson, J.R., *Mesner, P.W., *Delrow, J.J., *Mahmoud, N.N. and *Ciesielski, W.A. (1992). Rapid analysis of mitotic histone H1 phosphorylation by cationic disc electrophoresis at neutral pH in minigels. *Analytical Biochem.* 203, 227-234.
18. Kelter, P.B., Paulson, J.R. and Benbow, A. (1989). Kitchen Chemistry: a PACTS workshop for economically disadvantaged parents and children. *J. Chemical Education* 67, 892-894.
17. Paulson, J.R. (1989). Scaffold organization in histone-depleted HeLa metaphase chromosomes. *Chromosoma (Berl.)* 97, 289-295.
16. Kelter, P.B. and Paulson, J.R. (1988). Toward improving K-6th grade science education: A hands-on chemistry course for elementary teachers. *J. Chemical Education* 65, 1085-1087.
15. Paulson, J.R. (1988). Microscale organic laboratory: good news for biologists, too. *BioScene* 14 (2), 3-6.
14. Paulson, J.R. (1988). Scaffolding and radial loops: The structural organization of metaphase chromosomes. In *Chromosome and Chromatin Structure*, vol. 3, K.W. Adolph, ed., CRC Press, Boca Raton, FL, pp. 3-32.
13. Paulson, J.R. and Langmore, J.P. (1983). Low-angle X-ray diffraction studies of HeLa metaphase chromosomes: the effects of histone phosphorylation and chromosome isolation procedure. *J. Cell. Biol.* 96, 1132-1137.
12. Langmore, J.P. and Paulson, J.R. (1983). Low-angle x-ray diffraction studies of chromatin structure *in vivo* and in isolated nuclei and metaphase chromosomes. *J. Cell. Biol.* 96, 1120-1131.
11. Hamodrakas, S.J., Paulson, J.R., Rodakis, G.C. and Kafatos, F.C. (1983). X-ray diffraction studies of a silk-moth chorion. *Int. J. Biol. Macromol.* 5, 149-153.

10. Paulson, J.R. (1982). Chromatin and chromosomal proteins. In *Electron Microscopy of Proteins*, vol. 3., J.R. Harris, ed., Academic Press, London, pp. 77-134.
9. Paulson, J.R. and Taylor, S.S. (1982). Phosphorylation of histones H1 and H3 and non-histone HMG14 by an endogenous kinase in HeLa metaphase chromosomes. *J. Biol. Chem.* **257**, 6064-6072.
8. Paulson, J.R. (1982). Isolation of chromosome clusters from metaphase-arrested HeLa cells. *Chromosoma (Berl.)* **85**, 571-581.
7. Paulson, J.R. (1980). Sulfhydryl reagents prevent dephosphorylation and proteolysis of histones in isolated HeLa metaphase chromosomes. *Eur. J. Biochem.* **111**, 189-197.
6. Laemmli, U.K., Cheng, S.M., Adolph, K.W., Paulson, J.R., Brown, J.A., and Baumbach, W.R. (1978). Metaphase chromosome structure: the role of non-histone proteins. *Cold Spring Harbor Symp. Quant. Biol.* **42**, 351-360.
5. Paulson, J.R. and Laemmli, U.K. (1977). The structure of histone-depleted metaphase chromosomes. *Cell* **12**, 817-828.
4. Adolph, K.W., Cheng, S.M., Paulson, J.R. and Laemmli, U.K. (1977). Isolation of a protein scaffold from mitotic HeLa cell chromosomes. *Proc. Natl. Acad. Sci. USA* **74**, 4937-4941.
3. Paulson, J.R. and Laemmli, U.K. (1977). Morphogenetic core of the bacteriophage T4 head: Structure of the core in polyheads. *J. Mol. Biol.* **111**, 459-485.
2. Paulson, J.R., Lazaroff, S. and Laemmli, U.K. (1976). Head length determination in bacteriophage T4: The role of the core protein P22. *J. Mol. Biol.* **103**, 155-174.
1. Laemmli, U.K., Paulson, J.R. and Hitchins, V. (1974). Maturation of the head of bacteriophage T4: A possible DNA packaging mechanism, in vitro cleavage of the core proteins and the structure of the core of the polyhead. *J. Supramol. Str.* **2**, 276-301.

Presentations since 1997 (*undergraduate and ** graduate student co-author):

- James R. Paulson, *Erica R. Vander Mause, *Bakhtawar Usman. "The use of Ellman's reagent in the isolation of mitotic chromosomes for structural and biochemical studies." Presented by J. Paulson and E. VanderMause at the 2014 ASCB/IFCB Meeting (American Society for Cell Biology/International Federation of Cell Biology), Dec. 6-10, Philadelphia, PA.
- Evolution and "Intelligent Design". Paulson, J.R. Presented at First Congregational Church, Lifelong Learning, Oshkosh, WI, Feb. 9, 2014.
- Induction of Premature Chromosome Condensation without Histone H1 Phosphorylation. Paulson, J.R., *Vander Mause, E. *Schultz, T.J., Earnshaw, W.C. Presented by J.R. Paulson at the 52nd Annual Meeting, American Society for Cell Biology, San Francisco, CA, Dec. 15-19, 2012.
- Protein Phosphatase 1 is Required Downstream from Cdk1 Inactivation in Exit from Mitosis but Cdc 14 Phosphatase is not. **Keaton, J.M., *Workman, B.G., Xie, L., Stark, M.J.R, Paulson, J.R. Presented by J.R. Paulson at the 51st Annual Meeting of the American Society for Cell Biology, Denver, CO, Dec. 3-7, 2011.
- Studies on the Diminished Acetylation of Core Histones during Mitosis. Patzlaff J.S., Terrenoire, E., Turner B.M., Earnshaw W.C., Paulson J.R. (2010) Presented by J.R. Paulson at the 50th Annual Meeting of the American Society for Cell Biology, Philadelphia, PA, Dec. 11-15, 2010.
- Progress Report: Studies of histone modifications and mitosis. Seminar presentation, Wellcome Trust Centre for Cell Biology, University of Edinburgh, Scotland, April 17, 2008.
- Histone modifications and mitosis: Possible clues to the mechanism of chromosome condensation? Seminar presentation, Wellcome Trust Centre for Cell Biology, University of Edinburgh, Scotland, Feb. 7, 2008.
- Histone acetylation, histone phosphorylation, protein phosphatases and mitosis (and maybe apoptosis). Seminar presentation, Wellcome Trust Centre for Cell Biology, University of Edinburgh, Scotland, Oct. 23, 2007.

- Involvement of protein phosphatase enzymes in exit from mitosis in the budding yeast *Saccharomyces cerevisiae*. **Keaton, J.M., *Workman, B.G., Xie, L., Paulson, J.R. Presented by J.R. Paulson at the 47th Annual Meeting of the American Society for Cell Biology, Washington, D.C., Dec. 1 - 5, 2007
- Chemical genetic analysis of cyclin-dependent kinase cdc2p: New insights into the regulation of cytokinesis. Dischinger, S., Krapp, A., Xie, A., Paulson, J.R., Simanis, V. Presented by S. Dischinger at the 47th Annual Meeting of the American Society for Cell Biology, Washington, D.C., Dec. 1 - 5, 2007
- The role of Protein Phosphatase 1 downstream from MPF inactivation in exit from mitosis. Wellcome Trust Biocentre, University of Dundee, Scotland, May 29, 2006.
- The role of Protein Phosphatase 1 downstream from MPF inactivation in exit from mitosis. Institute for Cell Biology, University of Edinburgh, Scotland, May 26, 2006.
- Exit from mitosis: A new approach combining yeast genetics, molecular biology and protein chemistry. Lawrence University, May. 11, 2005.
- Specific inhibition of MPF in metaphase-arrested *Saccharomyces cerevisiae* is sufficient to induce exit from mitosis. Keaton, J.M, Paulson, J.R. Presented by J.R. Paulson at the 44th Annual Meeting of the American Society for Cell Biology, Washington, D.C., Dec. 4 - 8, 2004.
- Induction of apoptosis in metaphase-arrested HeLa cells by mild hyperthermia. J.R. Paulson, A.A. Kecskeméti*, and P.W. Mesner. Poster presented by J.R. Paulson at the 43rd Annual Meeting of the American Society for Cell Biology, San Francisco, CA, Dec. 13-17, 2003.
- Exit from mitosis: A new approach combining yeast genetics, molecular biology and organic chemistry. J.R. Paulson, Seminar, Department of Chemistry, UW Oshkosh, Nov. 22, 2002.
- Hyperthermia induces apoptosis in mitotic cells. A. A. Kecskeméti*, J. R. Paulson and P.W. Mesner. Poster presented by Agnes A. Kecskeméti at the National Conference on Undergraduate Research (NCUR) 2002, University of Wisconsin-Whitewater, Whitewater, Wisconsin, April 25-27, 2002.
- Science and Creation. J.R. Paulson, Seminar presented to Senior Honors Seminar, UW Oshkosh (Instructor: Dr. William Urbrock), April 22, 2002.
- MPF inactivation at the end of mitosis: Trigger for protein phosphatase activation and reestablishment of the interphase state. J. R. Paulson, Seminar, Department of Biology, University of Wisconsin Whitewater, February 22, 2002.
- MPF inactivation and exit from mitosis. J.R. Paulson, Seminar, Department of Molecular Biology, University of Geneva, Switzerland, June 26, 2001.
- Studies on exit from mitosis: The role of MPF inactivation and protein phosphatase 1 in reestablishment of the interphase state. J.R. Paulson, Seminar, Department of Experimental Pathology, University of Pisa, Italy, June 11, 2001.
- MPF inactivation as trigger for protein phosphatase activation and re-establishment of the interphase state. J.R. Paulson, Presentation at Minisymposium on "Exit from Mitosis and Related Topics" held at ISREC, Epalinges, Switzerland, June 5, 2001
- Cyclin inactivation at the end of mitosis. J.R. Paulson, Seminar, ISREC, Epalinges, Switzerland, May 8, 2001.
- Approaches to the study of exit from mitosis. J.R. Paulson, Seminar, ISREC, Epalinges, Switzerland, Feb. 14, 2001.
- Is evolution a reasonable scientific theory? J.R. Paulson, debate against creationist Kent Hovind. UW Oshkosh, April 8, 2000.
- The Darwinian Revolution J.R. Paulson, in the "LIVE! At the Library" series, Oshkosh Public Library. Feb. 23, 2000.
- Exit from Mitosis. J.R. Paulson, Seminar, Institute for Cell Biology, ETH-Hönggerberg (Swiss Federal Institute of Technology), Zürich, Switzerland, August 27, 1999.

Exit from Mitosis. J.R. Paulson, Seminar, ISREC (Swiss Institute for Experimental Cancer Research), Epalinges sur Lausanne, Switzerland, August 20, 1999.

Exit from Mitosis. J. R. Paulson, 3rd Annual Swiss Cell Cycle and Signalling Workshop, Couvette-sur-Payerne, Vaud, Switzerland, 19 – 20 August 1999.

The Age of Revolution. M. Missner, F. Barricelli, J.R. Paulson, Dean's Symposium, UW Oshkosh, Oct. 14, 1999.

Exit from Mitosis: Dephosphorylation of Mitotic Phosphoproteins and How it is Controlled. J.R. Paulson, Seminar, Department of Chemistry, UW Oshkosh, Dec. 10, 1999.

Evidence that MPF Inactivation at the End of Mitosis Triggers Reestablishment of the Interphase State. J.R. Paulson, J.S. Patzlaff, A.J. Vallis*, and L.L. Higley*. Poster presented by J.R. Paulson, 37th American Society for Cell Biology Annual Meeting, Dec. 13 - 17, 1997, Washington D.C. (Abstract published in *Molecular Biology of the Cell* **8**:138a, Nov. 1997)