

Biographical Sketch

Paul L. DeAngelis

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Associate Professor

Dept. of Biochemistry & Molecular Biology; University of Oklahoma Health Sciences Center
940 Stanton L. Young Boulevard; BMSB 853; Oklahoma City, OK 73104

EDUCATION:

Institution	Degree	Year	Field of Study
Harvard, Cambridge, MA	B.A.	1984	Biochemical Sciences
University of California, Irvine, CA	Ph.D.	1990	Biological Sciences
U. of Texas, Med. Branch at Galveston, TX	Postdoc.	1990-93	Biochem./Molec.Biol.

PROFESSIONAL, RESEARCH, AND TEACHING EXPERIENCE:

9/81-6/84 Undergraduate Research Assistant, Dept. of Developmental and Cell Biology, Harvard, MA. *Thesis Advisor:* Dr. Arthur R. Ayers

7/84-6/85 Research Assistant, Worcester Fdn. for Experimental Biology, Shrewsbury, MA

7/85-7/86 Staff Research Assistant, Department of Molecular Biology and Biochemistry, University of CA, Irvine.

9/86-7/90 Graduate Student, Department of Molecular Biology and Biochemistry, University of CA, Irvine. *Thesis advisor:* Dr. Charles G. Glabe.

7/90-8/93 Postdoctoral Fellow, Dept. of Human Biological Chemistry and Genetics. University of Texas Medical Branch, Galveston, TX with Dr. Paul Weigel.

9/93-11/94 Instructor of Research, Dept. of Human Biological Chemistry and Genetics, U. of Texas Medical Branch, Galveston, TX.

12/94-6/00 Assistant Professor, Department of Biochemistry and Molecular Biology, Univ. of Oklahoma Health Sciences Center, Oklahoma City, OK.

6/00- present Associate Professor, Department of Biochemistry and Molecular Biology, Univ. of Oklahoma Health Sciences Center, Oklahoma City, OK.

HONORS AND AWARDS:

University of Oklahoma Health Sciences Center:

Provost's Research Award for Junior Faculty, 2000

University of Texas Medical Branch:

McLaughlin Postdoctoral Fellow (salary & supplies), 1991-93

Infection and Immunity Colloquium Poster Award, 1992

University of California, Irvine:

Dr. William F. Holcomb Research Award, 1987

Regents' Fellowship, 1986-87; Dissertation Fellowship, 1989-90

Harvard University: David Loring Scholar, 1980-84; *cum laude*, 1984

EDITORIAL BOARD: *Analytical Biochemistry* (1998-present)
 Journal of Biological Chemistry (2006-2009)
 Glycobiology (2006-2010)

SELECTED PEER-REVIEWED PUBLICATIONS (22 of 45):

- Williams, K.J., Halkes, K.M., Kamerling, J.P., and **DeAngelis, P.L.** (2005) Critical elements of oligosaccharide acceptor substrates for the *Pasteurella multocida* hyaluronan synthase. *J. Biol. Chem.* Dec 16; **Epub** ahead of print
- Widner, B., Behr, R., Von Dollen, S., Tang, M., Heu, T., Sloma, A., Sternberg, D., **DeAngelis, P.L.**, Weigel, P.H., Brown, S. (2005) Hyaluronic Acid Production in *Bacillus subtilis*. *Appl. Environ. Microbiol.* **71**: 3747-3752.
- Blundell, C.D., Almond, A., Mahoney, D.J., **DeAngelis, P.L.**, Campbell, I.D., and Day, A.J. (2005) Towards a structure for a hyaluronan-TSG-6 complex by modeling and NMR spectroscopy: Insights into other members of the link module superfamily. *J. Biol. Chem.* **280**: 18189-18201.
- Bodevin-Authelet, S., Kusche-Gullberg, M., Pummill, P.E., **DeAngelis, P.L.**, and Lindahl, U. (2005) Biosynthesis of hyaluronan: Direction of chain elongation. *J. Biol. Chem.* **280**:8813-8818.
- DeAngelis, P.L.** and White, C.L. (2004) Identification of a Distinct, Cryptic Heparosan Synthase from *Pasteurella multocida* Types A, D and F. *J. Bacteriology.* **186**: 8529-8532
- Jing, W. and **DeAngelis, P.L.** (2004) Synchronized Chemoenzymatic Synthesis of Monodisperse Hyaluronan Polymers. *J. Biol. Chem.* **279**:42345-42349.
- Blundell, C.D., **DeAngelis, P.L.**, Day, A.J., and Almond, A., (2004) Use of ¹⁵N-NMR to resolve molecular details in isotopically-enriched carbohydrates: sequence-specific observations in hyaluronan oligomers up to deca-saccharides *Glycobiol.* **14**:999-1009.
- DeAngelis, P.L.**, Oatman, L.C., and Gay, D.F. (2003) Rapid Chemoenzymatic Synthesis of Monodisperse Oligosaccharides with Immobilized Enzyme Reactors. *J. Biol. Chem.* **278**: 35199-35203.
- Jing, W. and **DeAngelis, P.L.** (2003) Analysis of the two active sites of the hyaluronan synthase and the chondroitin synthase of *Pasteurella multocida*. *Glycobiology.* **13**: 661-671.
- Pummill, P.E. and **DeAngelis, P.L.** (2003) Alteration of Polysaccharide Size Distribution of a Vertebrate Hyaluronan Synthase by Mutation. *J. Biol. Chem.* **278**:19808-19814.
- DeAngelis, P.L.**, Gunay, N.S., Toida, T., Mao, W., and Linhardt, R.L. (2002) Identification of the capsular polysaccharides of Type D and F *Pasteurella multocida* as unmodified heparin and chondroitin, respectively. *Carbohydr. Res.* **337**:1547-1522.
- Pummill, P.E. and **DeAngelis, P.L.** (2002) Evaluation of critical structural elements of UDP-sugar substrates and certain cysteine residues of a vertebrate hyaluronan synthase. *J. Biol. Chem.* **277**:21610-21616.
- DeAngelis, P.L.** and White, C.L. (2002) Identification and molecular cloning of a heparosan synthase from *Pasteurella multocida* type D" *J. Biol. Chem.* **277**: 7209-7213.
- Pummill, P.E., Kempner, E.S., and **DeAngelis, P.L.** (2001) Functional Molecular Mass of a Vertebrate Hyaluronan Synthase as Determined by Radiation Inactivation Analysis. *J. Biol. Chem.* **276**: 39832-39835.

- DeAngelis, P.L.** and Padgett-McCue, A.J. (2000) Identification and Molecular Cloning of a Chondroitin Synthase from *Pasteurella multocida* Type F. *J. Biol. Chem.* **275**: 24124-24129.
- Jing, W. and **DeAngelis, P.L.** (2000) Dissection of the Two Transferase Activities of the *Pasteurella multocida* Hyaluronan Synthase: Two Active Sites Exist in One Polypeptide. *Glycobiology*. **10**: 883-889.
- DeAngelis, P.L.** (1999) Molecular Directionality of Polysaccharide Polymerization by the *Pasteurella multocida* Hyaluronan Synthase. *J. Biol. Chem.* **274**:26557-26562.
- DeAngelis, P.L.**, Jing, W., Drake, R.R., and Achyuthan, A.M. (1998) Identification and Molecular Cloning of a Unique Hyaluronan Synthase from *Pasteurella multocida*. *J. Biol. Chem.* **273**: 8454-8458.
- DeAngelis, P.L.**, Jing, W., Graves, M.V., Burbank, D.E., and Van Etten, J.L. (1997) Hyaluronan Synthase of *Chlorella* Virus PBCV-1. *Science*.**278**:1800-1803
- DeAngelis, P.L.**, and A.M. Achyuthan (1996) Yeast-derived DG42 Protein of *Xenopus* can Synthesize Hyaluronan *in vitro*. *J. Biol. Chem.* **271**: 23657-23660.
- DeAngelis, P.L.** and Weigel, P.H. (1994) Immunochemical Confirmation of the Primary Structure of Streptococcal Hyaluronan Synthase and Synthesis of High Molecular Weight Product by Recombinant Enzyme. *Biochemistry* **33**:9033-9039.
- DeAngelis, P.L.**, Papaconstantinou, J. and Weigel, P.H. (1993) Molecular Cloning, Identification, and Sequence of the Hyaluronan Synthase Gene from Group A *Streptococcus pyogenes*. *J. Biol. Chem.* **268**:19181-19184.

BIOTECHNOLOGY SPIN-OFFS:

Hyalose, L.L.C., Oklahoma City, OK – 2000, Co-founder, Chief Scientist & Director;
recombinant hyaluronan-based biomaterials, and drugs reagents.

Choncept, L.L.C., Oklahoma City, OK – 2002, Founder, Chief Scientist & Director;
recombinant chondroitin-based biomaterials and polymers.

Heparinex, L.L.C., Oklahoma City, OK – 2002, Founder, Chief Scientist & Director;
recombinant heparinoid-based drugs and reagents.

RESEARCH SUPPORT:

ACTIVE GRANTS

- 1) **1999-2007**, Principal Investigator: **National Science Foundation**, Molecular & Cellular Biosciences, **Early Career Award / Renewal MCB-9876193**. Direct Costs \$584,111
"Analysis and Construction of Polysaccharide Synthases and Production of Novel Biomaterials"
- 2) **2005-2007**, Principal Investigator: **Oklahoma Center for Advancement of Science and Technology, OCAST OARS AR05(2)-031** (Haller, co-P.I.) Direct Costs \$277,200
"Hyaluronan-Assisted Targeting Systems for Drug Delivery"
- 3) **2005-2007**, Principal Investigator: **Oklahoma Center for Advancement of Science and Technology, OCAST OARS AR051-010**. (Haller/Jing, co-P.I.s) Direct Costs \$300,000
"Development of Renewable Chondroitin Production System"

COMPLETED PROJECTS

- 1) **1995-97**, Principal Investigator: **U.S. Dept. of Agriculture**, Animal Health & Well Being, **National Research Initiative**, 94-37204-0929. Direct Costs \$130,000
"Biosynthesis of the Pasteurella multocida capsule and its role in fowl cholera"
- 2) **1995-96**, Principal Investigator: **Univ. of Oklahoma Medical Alumni Association, Medical Research Scholar**. Direct Costs \$20,000
- 3) **1997-2003**, Principal Investigator: **National Institutes of Health**, General Medical Sciences, **R01 GM56497**. Direct Costs \$409,786
"Analysis of Eukaryotic Hyaluronan Synthases"
- 4) **2002-2004**, Principal Investigator: **Oklahoma Center for Advancement of Science and Technology, OCAST OARS AR02.2-019** Direct Costs \$300,000
"Bioreactors for Synthesis of Novel Therapeutic Sugars"
- 5) **2003-2004** co-Principal Investigator: **OU / Whittaker Bioengineering Seed Grant** Direct Costs \$30,000
"Novel Biodegradable Cell/Polymer Constructs that Promote Vascularization and New Bone Formation"
- 6) **2002-2005**, Principal Investigator: **Oklahoma Center for Advancement of Science and Technology, OCAST Health HR02-036R**. Direct Costs \$135,000
"Drug Discovery with Sugar-based Microarrays"