

SHELLEY MAVES, PH.D.

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Professional Summary

Protein biochemist with experience in many areas including protein structure, enzymology, immunology, molecular biology, and cell biology. Have gained valuable experience in business settings including both global pharmaceutical and start-up biotech companies.

Skills

High Throughput Screening of Biological Libraries	Recombinant Protein Expression Systems
Phage Display Peptide Library	Protein Homology Modelling
Protein Isolation, Characterization, and Modification	Cytochrome P450 Structure/Function Biochemistry
Protein Structure - Function Relationships	Complement Biochemistry

Professional Experience

Principal Consultant, 2014 - Current

BioPhia Consulting, Inc. – Lake Forest, IL

Provide advice in the areas including protein/peptide biochemistry, high throughput assay development and screening, and inflammatory and immune response to companies developing medical products.

Director of Research, 2004 - 2008

Innate Biotech, Inc. – Chicago, IL

Co-Founder and Director of Research for start-up biotech company developing novel complement inhibiting peptides. Responsible for development of pre-clinical study for lead peptide candidate. Solicited funding from numerous sources including venture capital, NIH SBIR grants, and individual investors.

Associate Research Scientist, 2003 - 2004

Baxter Healthcare – Round Lake, IL

Develop novel biological product leads in an exploratory setting including screening, lead target identification, characterization and optimization. Design and manage projects to support the optimization of and problem solving for obstacles with current Baxter products. Design and expand technology platforms within Baxter including phage display screening capabilities, high throughput screening methodologies, and recombinant expression systems. Supervised the research projects of direct reports.

Post Doctoral Program Associate, 2000 - 2003

Baxter Healthcare – Round Lake, IL

Developed combinatorial technology platforms including the use of phage display to screen libraries for inhibitory function in the complement system. Designed and developed novel assays for screening libraries and characterizing lead candidates.

Research Assistant, 1996 - 2000

University of Illinois – Champaign-Urbana IL

Generated randomized libraries of cytochrome P450 using DNA shuffling and random mutagenesis and developed methods for high throughput screening of cytochrome P450 to isolate phenotypes with altered thermostability, substrate specificity and catalytic properties. Isolated and characterized cytochrome P450 mutants with altered thermostability using differential scanning calorimetry. Developed homology models of P450s and analyzed to understand the molecular reasons for altered phenotypes and rationally predict new interactions. Prepared manuscripts for publication and participated in writing grants for NIH support. Presented research at local as well as international conferences. Supervised and designed two independent undergraduate projects.

Teaching Assistant, 1999 - 2000

University of Illinois – Champaign-Urbana IL

Developed new course protocols and taught graduate biochemistry laboratory class.

Education

Ph.D.: Biochemistry, 2000

University of Illinois - Champaign-Urbana IL

Bachelor of Science: Biochemistry, 1996

University of Illinois - Champaign-Urbana IL

Publications

Kellner, D.G., Maves, S.M., and Sligar, S.G. (1997) "Engineering Cytochrome P450 for Bioremediation." *Current Opinion in Biotechnology* 8: 274-78.

Maves, S. A., Yeom, H., McLean, M. A., and Sligar, S. G. (1997) "Decreased Substrate Affinity Upon Alteration of the Substrate-Docking Region in Cytochrome P450BM-3." *FEBS Letters* 414, 213-218.

McLean, M.A., Maves, S.A., Weiss, K. E., Krepich, S., Sligar, S. G., (1998) "Characterization of a Cytochrome P450 from the Acidothermophilic Archea *Sulfolobus solfataricus*." *Biochem. Biophys. Res. Comm.* 252:166-172.

Schlichting, I., Berendzen, J., Chu, K., Stock, A. M., Sweet, R. M., Ringe, D., Petsko, G. A., Maves, S. A., Benson, D. E., and Sligar, S. G. (2000) "The Catalytic Pathway of Cytochrome P450cam at Atomic Resolution." *Science* 287:1615-1622.

Maves, S. A. and Sligar, S. G. (2000) "Understanding Thermostability in Cytochrome P450 through Combinatorial Mutagenesis." *Protein Science* 10:161-8.

Park, S.Y., Yamane, K., Adachi, S., Shiro, Y., Weiss, K.E., Maves, S.A., and Sligar, S.G. (2002) "Thermophilic cytochrome P450 (CYP119) from *Sulfolobus solfataricus*: high resolution structure and functional properties." *Journal of Inorganic Biochemistry* 91:491-501

Abstracts

Maves, S.A. and Sligar, S.G. (1999) "Directed Evolution of Cytochrome P450 Thermostability." 11th International Conference on Cytochrome P450 Sendai, Japan.

Sligar, S.G. and Maves, S.A. (1999) "Cryocrystallography and ENDOR Spectroscopy of Native and Mutant Intermediate Iron-Oxygen States of Cytochrome P450." 11th International Conference on Cytochrome P450 Sendai, Japan.

Maves, S. A. and Sligar S.G. (1999) "Directed Evolution of Cytochrome P450 Thermostability." The 1999 Midwest Cytochromes P450 Symposium West Lafayette, Indiana.

Johnson, R.J., S.A. Maves and L. Kastrup. 2004. Development of novel inhibitors of complement. *FASEB J.* 2004.

Johnson, R.J. and S.A. Maves. 2004. Development of peptides that augment complement activation. *FASEB J.* 2004.

Patent

Peptides that inhibit complement activation. Shelley Maves and Richard J. Johnson. Patent No. 7,348,401. Issued 03-25-2008.