

CURRICULUM VITAE

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Kevin D. Clark

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Education:

Postdoctoral 1994-1998, Department of Entomology, University of Wisconsin-Madison, Madison, WI
Research Topic: Discovery and Characterization of the Insect Cytokine Plasmacyte Spreading Peptide (PSP)

Postdoctoral 1991-1994, Department of Biochemistry, University of Wisconsin-Madison, Madison, WI
Research Topic: Pharmacology of the GTP Purinergic Receptor from *Paramecium tetraurelia*
Advisor: Dr. David L. Nelson

Ph.D., 1991, Department of Biochemistry, University of Wisconsin-Madison, Madison, WI
Thesis title: "GTP and Purinergic Receptors of *Paramecium tetraurelia*"
Thesis Advisor: Dr. David L. Nelson

B.F.A., 1981, Music Major, Carnegie-Mellon University, Pittsburgh, PA
Emphasis on Percussion Performance and Marimba
Major Advisor: Robert Page

Professional Experience:

1/02-present Research Scientist, Laboratory of Michael R. Strand, Department of Entomology, University of Georgia, Athens, GA

9/00-12/01 Associate Scientist, Laboratory of Michael R. Strand, Department of Entomology, University of Wisconsin-Madison.

9/98-9/00 Assistant Scientist, Laboratory of Michael R. Strand, Department of Entomology, University of Wisconsin-Madison.

9/94-8/98 Postdoctoral Fellow, Laboratory of Michael R. Strand, Department of Entomology, University of Wisconsin-Madison.

8/91-8/94 Postdoctoral Fellow, Laboratory of David L. Nelson, Department of Biochemistry, University of Wisconsin-Madison.

9/84-8/91 Graduate Research Assistant, Department of Biochemistry, University of Wisconsin-Madison

Funded Grants:

Disruption of the host immune response by a parasitic wasp. NIH R01 AI32617, \$620,000. 1998-2002.
Co-PI with M. R. Strand.

Cellular defense response in an insect system. NIH R01 AI38927, \$1,480,000. 2001-2006. Co-PI with M. R. Strand.

Specialized Training

Supervision of laboratory personnel and the following laboratory skills: Protein purification and related techniques, enzymatic assays, ELISA, peptide synthesis, mass spectrometry, HPLC, hemocyte preparation and assay, motion analysis.

Teaching Experience

Teaching Assistant for Veterinary Biochemistry, 1985 and 1986, School of Veterinary Medicine, University of Wisconsin-Madison, Madison WI.

Lecturer for Biochemistry 201 with Paul Friesen, Introduction to Biochemistry, Fall 1993, Department of Biochemistry, University of Wisconsin-Madison, Madison WI.

Lecturer for Biochemistry 630 with Julius Adler, Signal Transduction in Microorganisms, Fall 1993, Department of Biochemistry, University of Wisconsin-Madison, Madison WI.

Oral and Poster Presentations

Poster presentations:

1988, Gordon Conference on the Behavior of Microorganisms: Motion Analysis of *Paramecium tetraurelia*.

1989, American Society for Cell Biology Annual Meeting: Swimming Behavior of *Paramecium tetraurelia*.

1991, Asilomar Conference on Protist Molecular Biology: Response of *Paramecium tetraurelia* to GTP.

1994, Steenbock Symposium on Behavior of Microorganisms: Structure-Function Studies of the GTP Response in *Paramecium tetraurelia*.

1995, Entomological Society of America Annual Meeting: Purification of a peptide that induces spreading in *Pseudoplusia includens* hemocytes.

1998, Insect Cell Science Meeting: Purification and Characterization of Plasmacyte Spreading Peptide (PSP).

2000, Keystone Symposia on the Genetic Manipulation of Insects: Structure and Activity of the Insect Cytokine Plasmacyte-Spreading Peptide (PSP).

2002, Fourth International Symposium on Molecular Insect Science: The insect cytokine plasmacyte spreading peptide (PSP) interacts with its receptor through highly specific domains.

Oral Presentations

1991, Asilomar Conference on Protist Molecular Biology: Response of *Paramecium tetraurelia* to the guanine nucleotide GTP.

1995, Departmental Seminar, Department of Entomology, University of Wisconsin-Madison: Purification of a cytokine-like peptide that induces hemocyte spreading in *Pseudoplusia includens*.

1998, Departmental Seminar, Department of Veterinary Sciences, University of Wisconsin-Madison: Purification and Characterization of the Insect Cytokine Plasmacyte Spreading Peptide.

2000, Departmental Seminar, Department of Entomology, University of Wisconsin-Madison: Structure-Function Studies of the Insect Cytokine Plasmacyte Spreading Peptide.

2000, XXI International Congress of Entomology, Iguassu Falls, Brazil: Structure-Function Studies of the Insect Cytokine Plasmatocyte Spreading Peptide.

Research Publications:

Clark, K. D. and D. L. Nelson. 1991. An automated assay for quantifying the swimming behavior of *Paramecium* and its use to study cation responses. *Cell Motil. Cytoskel.* 19: 91-98.

Clark, K. D., T. M. Hennessey and D. L. Nelson. 1993. External GTP alters the motility and elicits an oscillating membrane depolarization in *Paramecium tetraurelia*. *Proc. Natl. Acad. Sci. USA* 90: 3782-3786.

Clark, K. D., T. M. Hennessey, D. L. Nelson and R. R. Preston. 1997. Extracellular GTP causes membrane-potential oscillations through the parallel activation of Mg²⁺ and Na⁺ currents in *Paramecium tetraurelia*. *J. Membr. Biol.* 157: 159-167.

Wassenberg, J., K. D. Clark and D. L. Nelson. 1997. Effect of SERCA pump inhibitors on chemoresponses in *Paramecium*. *J. Euk. Microbiol.* 44: 574-581.

Clark, K. D., L. L. Pech and M. R. Strand. 1997. Isolation and identification of a plasmatocyte spreading peptide from hemolymph of the lepidopteran insect *Pseudoplusia includens*. *J. Biol. Chem.* 272: 23440-23447.

Clark, K. D., A. Witherell and M. R. Strand. 1998. Plasmatocyte spreading peptide is encoded by an mRNA differentially expressed in tissues of the moth *Pseudoplusia includens*. *Biochem. Biophys. Res. Comm.* 250: 479-485.

Strand, M. R., K. D. Clark and E. M. M. Gardiner, 1999. Plasmatocyte spreading peptide does not induce *Microplitis demolitor* polydnavirus-infected plasmatocytes to spread on foreign surfaces. *Arch. Insect Bich. Physiol.* 42: 213-223.

Strand, M. R. and K. D. Clark. 1999. Plasmatocyte spreading peptide induces spreading of plasmatocytes but represses spreading of granulocytes. *Arch. Insect Biochem. Physiol.* 42: 213-223.

Volkman, B. J., M. E. Anderson, K. D. Clark, Y. Hayakawa, M. R. Strand and J. L. Markley. 1999. Structure of the insect cytokine Plasmatocyte Spreading Peptide from *Pseudoplusia includens*. *J. Biol. Chem.* 274: 4493-4496.

Strand, M. R., Y. Hayakawa, and K. D. Clark. 2000. Plasmatocyte spreading peptide (PSP1) and growth blocking peptide (GBP) are multifunctional homologs. *J. Insect Physiol.* 46: 817-824.

Clark, K. D., B. F. Volkman, B. F., H. Thoetiatikal, H., D. King, Y. Hayakawa and M. R. Strand. 2001. Alanine-scanning mutagenesis of Plasmatocyte Spreading Peptide identifies critical residues for biological activity. *J. Biol. Chem.* 276: 18491-18496.

Aizawa, T., Y. Hayakawa, A. Ohnishi, N. Fujitani, K. D. Clark, M. R. Strand, K. Miura, N. Koganesawa, Y. Kumaki, M. Demura, K. Nitta, and K. Kawano. 2001. Structure and Activity of the Insect Cytokine Growth-blocking Peptide. *J. Biol. Chem.* 276: 31813-31818.

Clark, K. D., B. F. Volkman, H. Thoetkiattikul, Y. Hayakawa, and M. R. Strand. 2001. N-terminal Residues of Plasmacyte-spreading Peptide Possess Specific Determinants Required for Biological Activity. *J. Biol. Chem.* 276: 37431-37435.

Clark, K. D., S. F. Garczynski, A. Arora, J. W. Crim, and M. R. Strand. 2004. Specific Residues in Plasmacyte Spreading Peptide are Required for Receptor Binding and Functional Antagonism of Insect Immune Cells. *J. Biol. Chem.* 279: 33246-33252.

Yoshida, M., T. Aizawa, T. Nakamura, K. Shitara, Y. Hayakawa, K. Matsubara, K. Miura, T. Kouno, K. D. Clark, M. R. Strand, M. Mizuguchi, M. Demura, K. Nitta, and K. Kawano. 2004. The Gly-Gly Linker Region of the Insect Cytokine Growth Blocking Peptide (GBP) is Essential for Activity. *J. Biol. Chem.* Papers in Press.

In Preparation

K. D. Clark, Y. Kim, and M. R. Strand. The Response to Plasmacyte Spreading Peptide (PSP) in *Pseudoplusia includens* is Developmentally Regulated. (*J. Insect Phys.*)

Clark, K. D., S. F. Garczynski, L. B. Kapa, J. W. Crim, and M. R. Strand. Structure/Function Relationships for Plasmacyte Spreading Peptide (PSP) Binding in Highly Sensitive Insect Immune Cells. (*J. Insect Biochem.*)

K. D. Clark, L. B. Kapa and M. R. Strand. A Simple and Specific Fluorescence-based tethered substrate protease assay. (*Biotechniques*)

References:

Julius Adler

Prof. of Biochemistry (Emeritus)
University of Wisconsin-Madison

<http://www.biochem.wisc.edu/adler/index.html>

David L. Nelson

Professor of Biochemistry
University of Wisconsin-Madison

<http://www.biochem.wisc.edu/nelson/index.html>

Michael R. Strand

Professor of Entomology
University of Georgia

<http://www.ent.uga.edu/personnel/faculty/strand/index.html>

Peptide Synthesis References

David King

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University of California-Berkeley

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Joe W. Crim

Department of Cell Biology
University of Georgia

<http://www.uga.edu/~cellbio/crim.html>

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University of Georgia

[http://www.ent.uga.edu/personnel/faculty/brown mark.htm](http://www.ent.uga.edu/personnel/faculty/brown_mark.htm)

Gary Case

Biotechnology Institute
University of Wisconsin-Madison

<http://www.biotech.wisc.edu/ServicesResearch/Peptide/PeptideSynth/>

Additional References available upon request

