Philip A. Klenotic, Ph.D.

Research Fellow, Department of Molecular Cardiology
Cleveland Clinic Foundation, 9500 Euclid Avenue, NB20, Cleveland, OH 44195
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Education:

1989-1993	B.S. in Comprehensive Chemistry (ACS certified) **John Carroll University**, University Heights, Ohio
1993-1999	Ph.D. in Biochemistry, December 1999. **The Ohio State University**, Columbus, Ohio Research Advisor: Professor Ross E. Dalbey Dissertation Title: A Structural and Biophysical Examination of *E. Coli* Signal Peptidase I.

Funding History:

American Heart Association – 0525334B
Postdoctoral training fellowship:
Sponsor: Dr Roy Silverstein.
Investigation of Histidine-rich Glycoprotein Modulation of Angiogenesis.
Total Direct Costs: $42.000; 7-1-05 through 6-30-06
$44,000; 7-1-06 through 6-30-07

Research Experience:

2012 **Research Fellow**, Department of Molecular Cardiology
2004-2011 **Research Fellow**, Department of Cell Biology, Cleveland Clinic Foundation, Laboratory of Dr Roy Silverstein, Chairman

Study of the structural and functional characteristics of CD36 and Histidine-rich glycoprotein.

- Experienced in mouse colony maintenance, genotyping, *in vivo* mouse angiogenesis assays (matrigel and sponge implant, corneal micropocket), and mouse tumor models.
- Knowledgeable of tissue preparation and staining / immunofluorescence.
- Proficient in cloning, expression and purification of proteins in bacterial, yeast, and human cell culture systems
- Extensive experience with HPLC and FPLC
- Expertise in ELISA, Western blotting, SDS-PAGE
- Currently using X-ray spectroscopy and NMR to map CD36 binding domains to thrombospondin-1.

2001-2004 **Research Fellow**, Department of Ophthalmology, Cleveland Clinic Foundation, Laboratory of Dr Bela Anand-Apte

Studied the cellular interactions of TIMP3 and its effects upon corneal neovascularization.

- PCR and RT-PCR-based cloning and analysis.
- Experience with the Matchmaker Yeast-2-Hybrid system.
- Familiar with human cell culture manipulation.
- Worked with various yeast protein expression systems.

1995-1999 **General Research Associate**, Department of Chemistry, The Ohio State University, 1995-1999.

- Skilled in DNA manipulation and sequencing techniques.
- Well trained in protein purification and detection schemes.
- Proficient in protein fluorescence, CD, and UV-Vis Spectroscopy.
- Familiar with NMR, IR, HPLC, GC/MS techniques.
- Conducted various immunoassay studies.

Professional Society Affiliations:

American Society for Matrix Biology
The American Heart Association
The American Chemical Society
Protein Society
FASEB
AAAS/Science Program for Excellence in Science

Professional Service:

Ad Hoc Journal Review:
Molecular Cancer Therapeutics

Committee Service:

Department of Cell Biology:

Research Fellow and Research Associate committee – communicates between postdocs and research associates with the department chair, implements ideas, organizes events for social and scientific development (i.e. happy hours and journal clubs), and oversees departmental equipment upkeep.

Educational/Teaching Activities:

Graduate Students Trained:

Sara Matthys – student at the Cleveland Clinic Lerner College of Medicine, class of 2014

Lisbeth delToro Mejias - Graduate Research Assistant at UPR Recinto de Ciencias Médicas.

Megan Mamolen Smolko – Undergraduate student, John Carroll University. Ph.D. awarded in Molecular Biology from Case Western Reserve University.

Lisa Stempak – Undergraduate student, John Carroll University. M.D. awarded from Toledo Medical School. Currently a resident in Pathology at University Hospitals, Cleveland, Ohio.

General Teaching Associate
Department of Chemistry, The Ohio State University, 1993-1999.
- Instructed recitation classes in general chemistry.
- Supervised undergraduate laboratory courses in general chemistry.
- Conducted general chemistry lectures.

General Teaching Associate
Department of Chemistry, John Carroll University, 1992-1993.
- Supervised and graded undergraduate organic laboratory courses.

Peer Reviewed Publications:

Klenotic, P.A., Page, R.C., Amick, J., Misra, S., Silverstein, R.L., *Molecular basis of anti-angiogenic thrombospondin-1 type 1 repeat domain interactions with CD36* – under review Arteriosclerosis, Thrombosis, and Vascular Biology – (2012)

Zhao, Y., Xiong, Z., Lechner, E.J., **Klenotic P.A.**, Hamburg, B.J., Hulver, M., Khare, A., Oriss, T., Mangalmurti, N., Chan, Y., Zhang, Y., Stolz, D.B., Rosengart, M.R., Pilewski, J., Ray, P., Ray, A., Silverstein, R.L., Lee, J.S., *Thrombospondin-1 triggers CD36-dependent macrophage IL-10 production and promotes resolution of experimental lung injury* – under review – Journal of Clinical Investigation (2012)

Klenotic, P.A., Page, R.C., Misra, S., Silverstein, R.L., *Expression, purification and structural characterization of functionally replete thrombospondin-1 type 1 repeats in a bacterial expression system.* Protein Expr Purif. Dec;80(2):253-9. (2011)

Klenotic, P.A., Huang P., Palomo J., Kaur B., Van Meir E.G., Vogelbaum M.A., Febbraio M., Gladson C.L., Silverstein R.L., *Histidine-rich glycoprotein modulates the anti-angiogenic effects of vasculostatin.*, Am J Pathol., Apr;176(4):2039-50. (2010)

Ebrahem Q., Chaurasia S.S., Vasanji A., Qi J.H., **Klenotic P.A.**, Cutler A., Asosingh K., Erzurum S., Anand-Apte B., *Cross-talk between vascular endothelial growth factor and matrix metalloproteinases in the induction of neovascularization in vivo***.,** Am J Pathol., Jan;176(1):496-503. (2010)

Kaur B., Cork S.M., Sandberg E.M., Devi N.S., Zhang Z., **Klenotic P.A.**, Febbraio M., Shim H., Mao H., Tucker-Burden C., Silverstein R.L., Brat D.J., Olson J.J., Van Meir E.G., *Vasculostatin*

inhibits intracranial glioma growth and negatively regulates in vivo angiogenesis through a CD36-dependent mechanism., Cancer Res., Feb 1;69(3):1212-20. (2009)

Klenotic P.A., Munier F.L., Marmorstein L.Y., and Anand-Apte B., *Tissue Inhibitor of Metalloproteinases-3* (TIMP-3) *is a binding partner of EGF- containing fibulin-like extracellular matrix protein 1* (EFEMP1): *Implications for macular degenerations.* Journal of Biol. Chem, 279(29), 30469-73, (2004)

Hall N.G., **Klenotic P.A.,** Anand-Apte B. and Apte S.S., *ADAMTSL-3/punctin-2, a novel glycoprotein in extracellular matrix related to the ADAMTS family of metalloproteases*. Matrix Biology, 22(6), 501-510 (2003)

Klenotic, P.A., Carlos, J.L., Samuelson, J.C., Schuenemann, T., Tschantz, W.R., Paetzel, M., Strynadka, N.J., and Dalbey, R.E., *The Role of the Conserved Box E Residues in the Active Site of the Escherichia coli Type I Signal Peptidase* Journal of Biol. Chem, 275(9), 6490-8, (2000)

Carlos, J.L., **Klenotic, P.A.**, Paetzel, M., Strynadka, N.C.J., and Dalbey R.E., *Mutational Evidence of Transition State Stabilization by Serine 88 in Escherichia coli Type I Signal Peptidase.*, Biochem, 39, 7276-83, (2000)

Book Chapters:

Carlos, J.L., Paetzel, M., **Klenotic, P.A.**, Strynadka, N.C.J., and Dalbey, R.E., *Bacterial Type I Signal Peptidases.* The Enzymes 3rd ed. Vol 23, Academic Press, Dalbey R.E., and Sigman D.S. (Eds).