CURRICULUM VITAE

NAME: **John A. Anstrom, Ph.D.**

CURRENT ACADEMIC TITLE: Associate Professor
Discipline Chair/Anatomy

ADDRESS: Residence: 1216 Village Way South
Blacksburg, VA 24060

Telephone: (540) 552-4594 (Home)
(336) 391-4946 (Cell)

Business: Anatomy
Edward Via College of Osteopathic Medicine-Virginia Campus
2265 Kraft Drive
Blacksburg, VA 24060

Telephone: (540) 231-8216

E-Mail: janstrom@vcom.vt.edu

EDUCATION:

College:

Pennsylvania State University 1971-1975
State College, Pennsylvania
B.S. in Biology

Graduate School:

State University of New York 1975-1982
Buffalo, New York
Ph.D., Anatomical Sciences

Thesis: Mitosis in the Sea Urchin Embryo: The Effect of Temperature on the Isolated Mitotic Apparatus. Thesis Advisor: Dr. Robert G. Summers

POSTDOCTORAL TRAINING:

Indiana University Oct 1981-Aug 1986
Bloomington, Indiana (Dr. Rudolf A. Raff)

EMPLOYMENT:

Academic Experience:

Assistant Professor Department of Neurobiology and Anatomy Wake Forest University School of Medicine	1986-1998
Associate in Neurobiology and Anatomy Department of Neurobiology and Anatomy Wake Forest University School of Medicine	1998-2000
Research Assistant Professor Department of Radiology Wake Forest University Health Sciences	1998-2008
Adjunct Assistant Professor Biology Young Harris College	2009
Associate Professor/Discipline Chair Anatomy Edward Via College of Osteopathic Medicine	2009-present

OTHER PROFESSIONAL APPOINTMENTS AND INSTITUTIONAL SERVICE:

WFUSOM Hospital, School, Medical Center Committees:

Departmental Recruitment Committee	1987-1993
Medical Student Promotions Committee	1996-1998
Director, Human Structure and Development Course	1998-1999

VCOM

Student Admissions Committee	2009-2010
Promotions Committee	2010-
Curriculum Committee	2010-
Professional and Ethical Standards Board	2011-2012

PROFESSIONAL MEMBERSHIPS:

American Society for Cell Biology	1978-1993
Society for Developmental Biology	1991-1998
American Association of Anatomists	1997-present
American Association for the Advancement of Science	1986-present
Society for Neuroscience	2005-present
American Association of Clinical Anatomists	2010-
Association of Anatomy Cell Biology and Neurobiology Chairpersons	2010-

TEACHING EXPERIENCE:

VCOM

Gross Anatomy	2009-
Neuroanatomy	2010-

Wake Forest University School of Medicine

Histology	1986-1998
Embryology	1988-1998
Gross Anatomy	1996-1998
Cell Biology	1986-1998
Small Group facilitator in case-based learning medical student curriculum	1992-1994

State University of New York/Buffalo

Gross Anatomy	1977
Histology	1978
Neuroanatomy	1979

PROFESSIONAL RESEARCH INTERESTS:

Cell biological nature of embryogenesis
Cerebral vascular development and pathology
Systems Integrated Anatomy Curriculum

GRANT HISTORY:

REAP: Bringing Precision Medicine to Anatomy Lab
7/2017 – 6/2018
$11,200
Educating students in the area of molecular genetics as it pertains to primary care of patients
Skip Garner, PhD, Principal Investigator; John Anstrom, PhD, Co-Principal Investigator

Foundation Seed Money
1/2012 – 12/2013
$102,455
Establishing a Plastination Laboratory
John Anstrom, Richard Wyeth, Igor Danelisen

Intramural Research Support
3 awards for a total of $17,000
to pursue studies related to morphogenesis
John A. Anstrom, Ph.D. principal investigator

March of Dimes Birth Defects Foundation (Basil O'Connor Starter Scholar Research Award)
10/1/1988 - 9/31/1991
$75,000
The regulation of primary mesenchyme cell migration in sea urchin embryos (yr 1 = $30,000; yr 2 = $30,000; yr 3 = $15,000 [extended year])
John A. Anstrom, Ph.D. principal investigator

Intramural Research Support
6/1/93 - 6/94 (extended - 12/31/94)
$6000
The role of msp130 in mesenchyme migration and differentiation
John A. Anstrom, Ph.D. principal investigator

BIBLIOGRAPHY:

Chapters in Books:

1. Showman RM, Wells DE, Anstrom JA, Hursh DA, Leaf DS, Raff RA. Subcellular localization of maternal histone mRNAs and the control of histone synthesis in the sea urchin embryo. In: Malacinski GM, Klein WH, eds. Molecular aspects of early development. New York: Plenum Press, 1984: 109-130.

2. Klein WH, Spain LM, Tyner AL, Anstrom JA, Showman RM, Carpenter CD, Eldon ED, Bruskin AM. A family of mRNAs expressed in the dorsal ectoderm of sea urchin embryos. In: Malacinski GM, Klein WH, eds. Molecular spects of early development. New York: Plenum Press, 1984: 131-140.

Journal Articles:

1. Hylander BL, Anstrom JA, Summers RG. Premature sperm incorporation into the primary oocyte of the Polychaete Pectinaria: male pronuclei formation and oocyte maturation. Dev Biol 1980; 82:382-387.

2. Anstrom JA, Summers RG. The role of extracellular calcium in the activation of Pectinaria oocytes. Dev Growth Differ 1981; 23:415-420.

3. Showman RM, Wells DE, Anstrom JA, Hursh DA, Raff RA. Message-specific sequestration of maternal histone mRNA in the sea urchin egg. Proc Natl Acad Sci U S A 1982; 79:5944-5947.

4. Anstrom JA, Summers RG. A morphological analysis of the first cleavage mitotic cytoskeleton isolated from sea urchin embryos (Strongylocentrotus droebachiensis). J Morphol 1983; 177:329-343.

5. Anstrom JA, Summers RG. A unilateral cleavage furrow in embryos of Strongylocentrotus droebachiensis. J Exp Zool 1983; 227:395-403.

6. Carpenter CD, Bruskin AM, Hardin PE, Keast MJ, Anstrom JA, Tyner AL, Brandhorst BP, Klein WH. Novel proteins belonging to the troponin-C superfamily are encoded by a set of mRNAs in sea urchin embryos. Cell 1984; 36:663-671.

7. Raff RA, Anstrom JA, Huffman CJ, Leaf DS, Loo J-H, Showman RM, Wells DE. Origin of a gene regulatory mechanism in the evolution of echinoderms. Nature 1984; 310:312-314.

8. Wells DE, Anstrom JA, Raff RA, Murray SR, Showman RM. Maternal stores of alpha subtype histone mRNAs are not required for normal early development of sea urchin embryos. Roux's Arch Dev Biol 1986; 195:252-258.

9. Anstrom JA, Parks AL, Chin J, Raff RA. Immunocytochemical evidence suggesting heterogeneity in the population of sea urchin egg cortical granules. Dev Biol 1987; 124:1-7.

10. Leaf DS, Anstrom JA, Chin JE, Harkey MA, Showman RM, Raff RA. Antibodies to a fusion protein identify a cDNA clone encoding msp130, a primary mesenchyme-specific cell surface protein of the sea urchin embryo. Dev Biol 1987; 121:29-40.

11. Showman RM, Leaf DS, Anstrom JA, Raff RA. Translation of maternal histone mRNAs in sea urchin embryos: A test of control by 5' cap methylation. Dev Biol 1987; 121:284-287.

12. Anstrom JA, Chin JE, Leaf DS, Parks AL, Raff RA. Localization and expression of msp130, a primary mesenchyme lineage-specific cell surface protein of the sea urchin embryo. Develop 1987;101:255-265.

13. Anstrom JA, Raff RA. Sea urchin primary mesenchyme cells: relation of cell polarity to the epithelial-mesenchymal transformation. Dev Biol 1988; 131:269-275.

14. Anstrom JA. Sea urchin primary mesenchyme cells: ingression occurs independent of microtubules. Dev Biol 1989; 131:269-275.

15. Anstrom JA, Mackie EJ, Tucker RP. Immunohistochemical localization of a tenascin-like extracellular matrix protein in sea

urchin embryos. Roux's Arch Dev Biol 1990; 199:169-173.

16. Anstrom JA. Organization of the ciliary basal apparatus in embryonic cells of the sea urchin, Lytechinus pictus. Cell Tissue Res 1992; 269:305-313.

17. Anstrom JA. Microfilaments, cell shape changes, and the formation of primary mesenchyme in sea urchin embryos. J Exp Zool 1992; 264:312-322.

18. Anstrom JA, Fleming AM. Formation of sea urchin primary mesenchyme: cell shape changes are independent of epithelial detachment. Roux's Arch Dev Biol 1994; 204:146-149.

19. Anstrom JA, Brown WF, Moody DM, Thore CR, Challa VR, Block SM. Temporal expression pattern of cerebrovascular endothelial cell alkaline phosphatase during human gestation. J Neuropathol Exp Neurol 2002; 61:76-84.

20. Challa VK, Thore CR, Moody DM, Brown WR, Anstrom JA. A three-dimensional study of brain string vessels using celloidin sections stained with anti-collagen antibodies. J Neurol Sci 2002; 203-4:165-167.

21. Brown WR, WR, Moody DM, Challa VR, Thore CR, Anstrom JA. Apoptosis in leukoaraiosis lesions. J Neurol Sci 2002; 203-204:169-171.

22. Brown WR, Moody DM, Challa VR, Thore CR, Anstrom JA. Venous collagenosis and arteriolar tortuosity in leukoaraiosis. J Neurol Sci 2002; 203-204:159-163.

23. Anstrom JA, Brown WR, Moody DM, Thore CR, Challa VR, Block SM. Anatomical analysis of the developing cerebral vasculature in premature neonates: absence of precapillary arteriole-to-venous shunts. Pediatr Res 2002; 52:554-560.

24. Anstrom JA, Brown WR, Moody DM, Thore CR, Challa VR, Block SM. Subependymal veins in premature neonates: implications for hemorrhage. Pediatr Neurol 2004; 30:46-53.

25. Challa VR, Thore CR, Moody DM, Anstrom JA, Brown WR. Increase of white matter string vessels in Alzheimer's disease. J Alzheimer's Disease 2004; 6:379-383.

26. Moody DM, Thore CR, Anstrom JA, Challa VR, Langefeld C, Brown WR. Quantification of afferent vessels shows reduced brain vascular density in subjects with leukoaraiosis. Radiology 2004; 223:883-890.

27. Anstrom JA, Thore CR, Moody DM, Challa VR, Block SM, Brown WR. Morphometric assessment of collagen accumulation in germinal matrix vessels of premature human neonates. Neuropathol Appl Neurobiol 2005; 31:181-190.

28. Anstrom JA, Moody DM, Thore CR, Challa VR, Block SM, Brown WR. Histological analysis of vascular patterns and connections in the germinal matrix of premature neonates. Neuroembryol 2005; 3:4-12.

29. Anstrom JA, Thore CR, Moody DM, Challa VR, Block SM, Brown WR. Germinal matrix cells associate with veins and a glial scaffold in the human fetal brain. Dev Brain Res 2005; 160:96-100.

30. Anstrom JA, Thore CR, Moody DM, Brown WR. Immunolocalization of tight junction proteins in blood vessels in human germinal matrix and cortex. Histochem Cell Biol 2007; 127:205-213.

31. Brown WR, Moody DM, Thore CR, Challa VR, Anstrom JA Vascular dementia in leukoaraiosis may be a consequence of capillary loss not only in the lesions, but in normal-appearing white matter and cortex as well. J Neurol Sci 2007; 257:62-6.

32. Thore CR, Anstrom JA, Moody DM, Challa VR, Marion MC, Brown WR. Morphometric analysis of arteriolar tortuosity in human cerebral white matter of preterm, young, and aged subjects. J Neuropathol Exp Neurol 2007; 66:337-345.

33. Brown WR, Moody DM, Thore CR, Anstrom JA, Challa VR. Microvascular changes in the white mater in dementia. J Neurol Sci 2009; 283:28-31.

34. Anandakrishnan R, Carpenetti TL, Samuel P, Wasko B, Johnson C, Smith C, Kim J, Michalak P, Kang L, Kinney N, Santo A, Anstrom J, Garner HR, Varghese RT. DNA sequencing of anatomy lab cadavers to provide hands-on precision medicine introduction to medical students. BMC Med Educ. 2020 Nov 16;20(1):437. PMID: 33198737.

Abstracts:

1. Anstrom JA, Summers RG. Morphological analysis of the first cleavage mitotic apparatus isolated from sea urchin embryos. Anat Rec 1982; 202:82.

2. Anstrom JA, Parks AL, Raff RA. Intracellular localization and surface expression of a set of cell-lineage specific antigens in sea urchin embryos. J Cell Biol 1984; 99:125A.

3. Anstrom JA, Raff RA. A novel form of cell motility during ingression of mesenchyme cells in sea urchin embryos. J Cell Biol 1985; 101:281A.

4. Anstrom JA, Chin JE, Leaf DS, Parks AL, Raff RA. Differentiation of the primary mesenchyme cell surface. J Cell Biol 1986; 103:372A.

5. Anstrom JA. The role of microtubules in the epithelial-mesenchymal transformation of sea urchin primary mesenchyme cells. J Cell Biol 1988; 107:816A.

6. Anstrom JA. Localization of microfilaments during the formation of sea urchin primary mesenchyme cells. J Cell Biol 1990; 111:482A.

7. Johnson JE, Forbes ME, Drum K, Anstrom JA. Measurements of BDNF protein during CNS development. Society of Neuroscience Abstracts 1996; 22:295.

8. Johnson JE, Forbes ME, Drum K, Anstrom JA. Treatment with BDNF does not prevent normal chick retinal ganglion cell death in ovo. Society of Neuroscience Abstracts 1996; 22:998.

9. Johnson JE, Forbes ME, Anstrom J, Yan Q. Regulation of BDNF protein levels in the developing visual system. Society of Neuroscience Abstracts 1997; 23:882.

10. Anstrom JA, Brown WR, Block SM, Moody DM. Lack of arterio-venous shunts in the cerebrum of premature human babies. Pediatr Res 2000; 47:64A.

11. Anstrom JA, Brown WR, Moody DM, Block SM, Challa VR. Collagen subtypes associated with germinal matrix vessels in premature human neonates. J Neuropath Exp Neurol 2000; 59:433.

12. Anstrom JA, Brown WR, Moody DM, Thore CT, Challa VR, Block SM. Temporal expression pattern of cerebral endothelial cell alkaline phosphatase in arterioles and capillaries during gestation of the human fetus. Pediatr Res 2001; 49:431A. Exhibited at the Pediatric Academic Societies' 2001 Annual Meeting, Baltimore, Maryland, April 28-May 1, 2001.

13. Brown WR, Anstrom JA, Challa VR, Block SM. A new type of cerebral malformation found in most preterm babies who die. Neuroscience 2001; 27:Program No. 447.13.

14. Anstrom JA, Brown WF, Thore CR, Challa VR, Moody DM. Measurement of alkaline phosphatase-positive cerebral vessels in premature human neonates. J Neuropathol Exp Neurol 2001; 60(5):516.

15. Brown WR, Anstrom JA, Block SM. Cortical defects (slits, clefts, and overlaps) in preterm babies masquerade as artifacts. J

Neuropathol Exp Neurol 2001; 60(5):551.

16. Anstrom JA, Brown WR, Moody DM, Thore CR, Challa VR, Block SM. Fate of vein-like structures in the germinal matrix of premature human neonates. Pediatr Res 2002; 51:64A.

17. Brown WR, Anstrom JA, Block SM. Cortical cleft syndrome: prematurity and death associated with cerebral malformations not previously described. Pediatr Res 2002; 51:68A.

18. Anstrom JA, Brown WR, Moody DM, Challa VR, Thore CR, Block SM. Vascular wall composition and its relation to the origin of hemorrhage in germinal matrix of premature babies. FASEB J 2002; 254.8. Exhibited at the Experimental Biology 2002 Annual Meeting, New Orleans, Louisiana, April 20-24, 2002.

19. Moody DM, Brown WR, Challa VR, Anstrom J A, Thore CR. White matter string vessels in Alzheimer's disease: a quantitative morphologic study. Exhibited at the 88th Scientific Assembly and Annual Meeting of the Radiological Society of North America. Chicago, Illinois, 2002. Abstract: Radiology 2002; 225(Suppl):428.

20. Brown WR, Anstrom JA, Thore CR, Block SM. A new type of brain malformation causing prematurity, death, and dysfunction. Pediatr Res 2003; 53:538A.

21. Challa VR, Thore CR, Moody DM, Brown WR, Anstrom JA. Increase of white matter string vessels in Alzheimer's disease. J Neuropathol Exp Neurol 2003; 62:544.

22. Anstrom JA, Brown WR, Moody DM, Thore CR, Challa VR, Block SM. Morphometry of capillaries in the brain germinal matrix and cortex of premature neonates: an autopsy study using alkaline phosphatase enzyme histochemistry. J Neuropathol Exp Neurol 2003; 62:559.

23. Brown WR, Anstrom JA, Thore CR, Block SM. A new type of brain malformation that may be the major cause of infant mortality. J Neuropathol Exp Neurol 2003; 62:560.

24. Anstrom JA, Brown WR, Moody DM, Thore CR, Challa VR, Block SM. Developmental status of brain endothelial cell basement membrane in human neonates born prematurely. FASEB J 2004; 18:A787.

25. Challa VR, Moody DM, Brown WR, Thore CR, Anstrom JA, Glazier SS. Observations on the vascular pathology of mesial temporal lobe epilepsy. J Neuropathol Exp Neurol 2004; 63:556.

26. Anstrom JA, Brown WR, Moody DM, Thore CR, Challa VR, Block SM. 2004 Developmental status of brain endothelial cell basement membrane in human neonates born prematurely. FASEB J; 18:A787.

27. Anstrom JA, Thore CR, Moody DM, Challa VR, Block SM, Brown WR. 2005 A vascular migration pathway for human germinal matrix cells. FASEB J; 19:A797.

28. Anstrom JA, Thore CR, Moody DM, Brown WR. An astrocytic scaffold associated with densely packed, migrating, perivenous progenitor cells in human germinal matrix. Society for Neuroscience 35th Annual Meeting, Washington, DC, November 2005.

29. Anstrom JA, Thore CR, Moody DM, Brown WR. Tight junction development in human germinal matrix vessels. Society for Neuroscience 36th Annual Meeting, Atlanta, GA 2006

30. Anstrom JA, Danelisen I, Wyeth RP 2012 Plastinated prosections in a systems-integrated gross anatomy curriculum. FASEB J;26:529.

Oral Presentations:

1. Anstrom JA, Brown WR, Moody DM, Block SM, Challa VR. Collagen subtypes associated with germinal matrix vessels in

premature human neonates. Presented at the American Association of Neuropathologists' Annual Meeting, Atlanta, Georgia, June 2000.

2. Anstrom JA, Brown WR, Moody DM, Thore CT, Challa VR, Block SM. Temporal expression pattern of cerebral endothelial cell alkaline phosphatase in arterioles and capillaries during gestation of the human fetus. Presented at the Pediatric Academic Societies' 2001 Annual Meeting, Baltimore, Maryland, April 28-May 1, 2001.