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## BIOGRAPHICAL SKETCH

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NAME Andrew J. Morris	POSITION TITLE Professor		
eRA COMMONS USER NAME (credential, e.g., agency login) AMorris			
EDUCATION/TRAINING (Begin with baccalaureate or other initial professional education, such as nursing, include postdoctoral training and residency training if applicable.)			
INSTITUTION AND LOCATION	DEGREE (if applicable)	MM/YY	FIELD OF STUDY
University of Bristol	B.Sc.	1981-84	Biochemistry
University of Birmingham	Ph.D.	1984-88	Biochemistry
University of North Carolina, Chapel Hill, NC	Post-Doctoral	1988-91	Pharmacology

### A. Personal Statement

Lipid phosphates are key molecules in the synthesis of sterols, neutral and phospholipids and, in some cases, serve as extracellular signaling molecules. The broad theme of my research program is to use approaches of biochemistry, genetics, chemical, cell and molecular biology to gain fundamental insights into the metabolism of this class of molecules and to then apply this information in preclinical and clinical models to explore their roles in physiological and disease processes. These interests led me to become active in the development and application of tandem mass spectrometry based methods for quantitation and profiling of lipids and I now also direct a core laboratory that provides small molecule and metabolite mass spectrometry services to institutional investigators. I will serve as PI for this application with overall responsibility for all of the proposed experiments.

### B. Positions and Honors

#### Positions and Employment

1991-1993: Res. Assistant Professor, Pharmacology, UNC-Chapel Hill, Chapel Hill, NC  
1993-1999 Assistant Professor, Pharmacology, SUNY-Stony Brook, Stony Brook, NY.  
1999-2001 Associate Professor, Pharmacology, SUNY-Stony Brook, Stony Brook, NY.  
2001-2005 Associate Professor, Cell Biology, UNC-Chapel Hill, Chapel Hill, NC  
2005-Present Endowed Professor, Cardiovascular Medicine & Pharmacology University of Kentucky, & Investigator, Lexington Veterans Affairs Medical Center, Lexington KY

#### Other Experience and Professional Memberships

1999, 2001 Co-Chair, FASEB Conference on Phospholipase D  
2000-2005, 2010- Present Editorial Board, Journal of Biological Chemistry  
2001-2010 Associate Editor, The Biochemical Journal  
2004 Chair, FASEB Conference on Phospholipases  
2005 & 2007 Co-Chair, FASEB Conference on Lysophospholipids and Related Mediators

#### Honors

1983-87: SERC CASE Predoctoral Fellowship Award  
1990: American Heart Association Young Investigator Award  
1990-92: Patrick J. Mitchell Fellowship, American Heart Association North Carolina Affiliate  
1994: NIH Director's Shannon Award.

### C. Selected recent publications (past 3 years) demonstrating expertise in small molecule mass spectrometry (from 213 total peer reviewed publications).

1. Albers HM, Dong A, van Meeteren LA, Egan DA, Sunkara M, van Tilburg EW, Schuurman K, van Tellingen O, Morris AJ, Smyth SS, Moolenaar WH, Ovaa H. 2010. Boronic acid-based inhibitor of autotaxin reveals rapid turnover of LPA in the circulation. *Proc Natl Acad Sci U S A* 107:7257-62. PMID: 2867685
2. Pihlajamaki J, Lerin C, Itkonen P, Boes T, Floss T, Schroeder J, Dearie F, Crunkhorn S, Burak F, Jimenez-Chillaron JC, Kuulasmaa T, Miettinen P, Park PJ, Nasser I, Zhao Z, Zhang Z, Xu Y, Wurst W, Ren H, Morris

- AJ, Stamm S, Goldfine AB, Laakso M, Patti ME. 2011. Expression of the splicing factor gene SFRS10 is reduced in human obesity and contributes to enhanced lipogenesis. *Cell Metab* 14:208-18. PMID: 3167228
3. Hausmann J, Kamtekar S, Christodoulou E, Day JE, Wu T, Fulkerson Z, Albers HM, van Meeteren LA, Houben AJ, van Zeijl L, Jansen S, Andries M, Hall T, Pegg LE, Benson TE, Kasiem M, Harlos K, Kooi CW, Smyth SS, Ovaa H, Bollen M, Morris AJ, Moolenaar WH, Perrakis A. 2011. Structural basis of substrate discrimination and integrin binding by autotaxin. *Nat Struct Mol Biol* 18:198-204. PMID: 3064516
  4. Breart B, Ramos-Perez WD, Mendoza A, Salous AK, Gobert M, Huang Y, Adams RH, Lafaille JJ, Escalante-Alcalde D, Morris AJ, Schwab SR. 2011. Lipid phosphate phosphatase 3 enables efficient thymic egress. *J Exp Med* 208:1267-78. PMID: 3173249
  5. Huang H, Gao Q, Peng X, Choi SY, Sarma K, Ren H, Morris AJ, Frohman MA. 2011. piRNA-associated germline nuage formation and spermatogenesis require MitoPLD profusogenic mitochondrial-surface lipid signaling. *Dev Cell* 20:376-87. PMID: 3061402
  6. Golan K, Vagima Y, Ludin A, Itkin T, Cohen-Gur S, Kalinkovich A, Kollet O, Kim C, Schajnovitz A, Ovadya Y, Lapid K, Shivtiel S, Morris AJ, Ratajczak MZ, Lapidot T. 2012. S1P promotes murine progenitor cell egress and mobilization via S1P1-mediated ROS signaling and SDF-1 release. *Blood* 119:2478-88. PMID: 22279055
  7. Mendoza A, Breart B, Ramos-Perez WD, Pitt LA, Gobert M, Sunkara M, Lafaille JJ, Morris AJ, Schwab SR. 2012. The transporter Spns2 is required for secretion of lymph but not plasma sphingosine-1-phosphate. *Cell Rep* 2:1104-10. PMID: 3616498
  8. Xiang B, Zhang G, Guo L, Li XA, Morris AJ, Daugherty A, Whiteheart SW, Smyth SS, Li Z. 2013. Platelets protect from septic shock by inhibiting macrophage-dependent inflammation via the cyclooxygenase 1 signalling pathway. *Nat Commun* 4:2657. PMID: 24150174
  9. Mitra MS, Chen Z, Ren H, Harris TE, Chambers KT, Hall AM, Nadra K, Klein S, Chrast R, Su X, Morris AJ, Finck BN. 2013. Mice with an adipocyte-specific lipin 1 separation-of-function allele reveal unexpected roles for phosphatidic acid in metabolic regulation. *Proc Natl Acad Sci U S A* 110:642-7. PMID: 3545773
  10. Singh S, Chang A, Helmich KE, Bingman CA, Wrobel RL, Beebe ET, Makino S, Aceti DJ, Dyer K, Hura GL, Sunkara M, Morris AJ, Phillips GN, Jr., Thorson JS. 2013. Structural and Functional Characterization of CalS11, a TDP-Rhamnose 3'-O-Methyltransferase Involved in Calicheamicin Biosynthesis. *ACS Chem Biol* 8:1632-9. PMID: 3875630
  11. Li X, Zhou Q, Sunkara M, Kutys ML, Wu Z, Rychahou P, Morris AJ, Zhu H, Evers BM, Huang C. 2013. Ubiquitylation of phosphatidylinositol 4-phosphate 5-kinase type I gamma by HECTD1 regulates focal adhesion dynamics and cell migration. *J Cell Sci* 126:2617-28. PMID: 3687698
  12. Salous AK, Panchatcharam M, Sunkara M, Mueller P, Dong A, Wang Y, Graf GA, Smyth SS, Morris AJ. 2013. Mechanism of rapid elimination of lysophosphatidic acid and related lipids from the circulation of mice. *J Lipid Res* 54:2775-84. PMID: 3770090
  13. Herzog BH, Fu J, Wilson SJ, Hess PR, Sen A, McDaniel JM, Pan Y, Sheng M, Yago T, Silasi-Mansat R, McGee S, May F, Nieswandt B, Morris AJ, Lupu F, Coughlin SR, McEver RP, Chen H, Kahn ML, Xia L. 2013. Podoplanin maintains high endothelial venule integrity by interacting with platelet CLEC-2. *Nature* 502:105-9. PMID: 3791160
  14. Onono F, Subramanian T, Sunkara M, Subramanian KL, Spielmann HP, Morris AJ. 2013. Efficient use of exogenous isoprenols for protein isoprenylation by MDA-MB-231 cells is regulated independently of the mevalonate pathway. *J Biol Chem* 288:27444-55. PMID: 3779739
  15. Wu T, Kooi CV, Shah P, Charnigo R, Huang C, Smyth SS, Morris AJ. 2014. Integrin-mediated cell surface recruitment of autotaxin promotes persistent directional cell migration. *Faseb j* 28:861-70. PMID: 3898650

## D. Research Support

### Active

R01 GM050388-18 (Morris)

08/01/94-6/30/14

NIH/NIGMS: **Role of Lipid Phosphatases in Cholesterol and Triglyceride Synthesis**

The major goals of this project are to understand the regulation and functions of distinct cytosolic and integral membrane lipid phosphatases that play central roles in the synthesis of sterols, glycerides and phospholipids.

Role: PI. No overlap.

BX001984-01 (Morris) 11/05/12-11/04/16  
VA BLR&D Merit Review: **Association of a Common Variant of PPAP2B gene with cardiovascular disease**  
The major goals of this application are to test specific hypotheses about the mechanistic basis for the strong association of a common polymorphism in the PPAP2B gene with cardiovascular disease. Role: PI, no overlap

5I01BX001014-03 (Smyth) 10/1/2010-9/30/2014  
VA BLR&D Merit Review: **Regulation of adipose cells by autotaxin / lysophosphatidic acid signaling**  
The goal of this project is to test the hypothesis that signaling pathways involved in the synthesis and metabolism of lysophosphatidic acid contribute to diet-induced thermogenesis and regulate the development of obesity. Role Co-PI. No overlap.

5R01HL078663-07 (Smyth) 09/24/2004-06/30/2014  
NIH/NHLBI: **Lysolipid Signaling in Cardiovascular Disease**  
The broad goal of this project is to identify roles for LPA signaling and specific LPA receptors in vascular injury responses and regulation of vascular tone. Role: Co-PI. No overlap

8P20GM103527-05 (Cassis) 09/08/08-06/30/2019  
NIH/NIGMS: **Center of Research in Obesity and Cardiovascular Disease: Analytical Core**  
I direct an analytical core of this center grant and serve as a mentor to junior faculty investigators supported by this award. Role: Core director, mentor. No overlap.

5P42ES007380-16 (Hennig) 04/07/97-03/31/19  
NIEHS: **Superfund Basic Research Program: Research Support Core**  
I direct this core which provides Bioanalytical and Bioinformatics support to investigators of the University of Kentucky Superfund basic research program. Role: Core director. No overlap.

5P42ES007380-16 (Hennig) 04/07/97-03/31/19  
NIEHS: **Superfund Chemicals, Nutrition, and Endothelial Cell Dysfunction**  
The goal of this study is to identify mechanisms by which environmental pollutants impair vascular endothelial cell function to promote cardiovascular disease. Role: Co-PI. No overlap.

1R01HL112788 (Rataczjak) 03/01/2013-02/28/2017  
University of Louisville (NIH flow through): **Bioactive lipids in stem cell mobilization and homing**  
The goal of this proposal is to test the hypothesis that sphingosine 1 phosphate and ceramide 1 phosphate regulate bone marrow mobilization and homing of hematopoietic stem cells. Role: Co-PI. No overlap

1R01ES023470-01 (Zhou) 09/26/2013 – 06/30/2018  
NIH/NIEHS: **Endocrine disruptor mediated activation of PXR causes dyslipidemia**  
The goal of this study is to define the role of environmental toxins as regulators of pathological hyperlipidemia and cardiovascular disease. Role: Co-PI. No overlap.

**Recently completed relevant prior research support.**

3R01GM050388-16S2 (Morris) 5/15/10-5/14/11  
NIH/NIGMS: **Role of Lipid Phosphatases in Cholesterol and Triglyceride Synthesis**  
This ARRA supplement funded the acquisition of upgraded mass spectrometry equipment to be used for the identification and quantitation of lipids and other small molecule metabolites

3R01GM066152-07 (Spielmann) 5/15/10-5/14/11  
NIH/NIGMS  
**Synthetic probes of Protein Prenylation**  
This ARRA supplement supported acquisition of upgraded mass spectrometry equipment to be used for the identification and quantitation of lipids and other small molecule metabolites by high throughput compatible MALDI mass spectrometry.

S10 RR026884 (Morris) 05/31/11-6/30/12  
NIH/NCRR  
**Advion Triversa Nanomate/ABSciex Nanospray III Ion Source for Targeted Lipidomics**  
This award provided funds for acquisition of a robotic chip-based nano electrospray ion source for mass spectrometry of lipids and other small molecule metabolites.