BIOGRAPHICAL SKETCH

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NAME: VOGT, ANDREAS

eRA COMMONS USER NAME (credential, e.g., agency login): avogts

POSITION TITLE: Associate Professor

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)	START DATE MM/YYYY	END DATE MM/YYYY	FIELD OF STUDY
University of Hamburg, Hamburg	BS	08/1979	08/1984	Pharmacy
University of Hamburg, Hamburg	PHD	06/1985	07/1990	Pharmaceutical Chemistry
University of Kentucky, Lexington, KY	Postdoctoral Fellow	11/1990	10/1993	Pharmacology

A. Personal Statement

I am a Molecular Pharmacologist with over 20 years of experience in small molecule drug discovery. My broad training in Pharmacy, Chemistry, and Pharmacology lead the foundation for a career in drug discovery that has spanned many diseases including diabetes, cancer, and organ regeneration. I have been an investigator in over 20 NIH sponsored research projects aimed at discovering small molecule inhibitors of a wide variety of challenging cellular drug targets. I helped establish a start-up company in Pittsburgh (ProlX Pharmaceuticals, Inc; now Cascadian Therapeutics; NASDAQ: CASC) where I served as Scientific Director from 1990-1993. After returning to the University of Pittsburgh I began my work on inhibitors of dual specificity phosphatases, which culminated in the discovery of the first allosteric inhibitor of DUSPs. Over the last 15 years a major interest of mine has been high-content analysis. I led the Bioinformation and Cell-Based Assay Core of an NIH Program Project (5P01 CA78039-10, Lazo, PI) and contributed significantly to the establishment of the University of Pittsburgh as one of the premier drug discovery centers using high-content screening. In 2005 I helped create the Pittsburgh Molecular Libraries Screening Center (PMLSC) (5U54MH074411; Lazo, PI), where I served as Director of the HTS Core. My group completed several large scale MLSCN-assigned high-throughput screens and developed multiple target-based and cellular assays. As a member of the UPDDI Core Management Team I conduct and manage multiple collaborative projects and provide the research community with HTS/HCS and translational resources and expertise. Because of my expertise and interests I have been invited to multiple review panels, and was recently appointed to the Editorial board of SLAS Discovery. My continued commitment to translating seminal biological findings into potential drug candidates and probe compounds will ensure that the proposed research will be successfully carried to completion.

1. Poe JA, Vollmer L, **Vogt A,** Smithgall TE. Development and validation of a high-content bimolecular fluorescence complementation assay for small-molecule inhibitors of HIV-1 Nef dimerization. J Biomol Screen. 2014;19(4):556-65. PMID: 24282155; PMCID: PMC4006692.
2. Joy ME, Vollmer, LL, Hulkower, KI, Stern, AM, Roy, P, **Vogt A.** (2014) A high content, multiplexed screen in human breast cancer cells identifies profilin-1 inducers with anti-migratory activities. PLoS ONE 2014;9(2):e88350. PMID: 24520372; PMCID: PMC3919756
3. Molina G, Vogt A, Bakan A, Dai W, Queiroz de Oliveira P, Znosko W, Smithgall TE, Bahar I, Lazo JS, Day BW, Tsang M. Zebrafish chemical screening reveals an inhibitor of Dusp6 that expands cardiac cell lineages. Nat Chem Biol. 2009 Sep;5(9):680-7. PubMed PMID: 19578332; PubMed Central PMCID: PMC2771339.
4. Vogt A, Cholewinski A, Shen X, Nelson SG, Lazo JS, Tsang M, Hukriede NA. Automated image-based phenotypic analysis in zebrafish embryos. Dev Dyn. 2009 Mar;238(3):656-63. PubMed PMID: 19235725; PubMed Central PMCID: PMC2861575.

   Featured in *DD Highlights* "Intelligent Screening"
   http://onlinelibrary.wiley.com/enhanced/doi/10.1002/dvdy.22002

B. Positions and Honors

Positions and Employment

1984 - 1986	Pharmacist, Public Pharmacies, Germany
1985 - 1990	Staff Scientist and Instructor, Institute of Pharmaceutical Chemistry, University of Hamburg, Hamburg
1990 - 1994	Postdoctoral Scholar, Department of Pharmacology, University of Kentucky, Lexington, KY
1994 - 1996	Research Associate, Department of Pharmacology, University of Pittsburgh, Pittsburgh, PA
1996 - 2000	Director of Scientific Operations, ProlX Pharmaceuticals (now Cascadian Therapeutics, NASDAQ: CASC), Pittsburgh, PA
1996 - 2011	Research Assistant Professor, Department of Pharmacology and Chemical Biology, University of Pittsburgh, Pittsburgh, PA
2005 - 2006	Director, HTS Core, Pittsburgh Molecular Libraries Screening Center (MLSCN)
2010 -	Member, Core Management Team, University of Pittsburgh Drug Discovery Institute
2010 -	Member, New Projects Group, University of Pittsburgh Drug Discovery Institute
2010 -	Group Leader, Small Organism Discovery, University of Pittsburgh Drug Discovery Institute
2011 -	Associate Professor, Department of Computational and Systems Biology, University of Pittsburgh, Pittsburgh, PA

Other Experience and Professional Memberships

1992 -	Member, American Chemical Society, Division of Medicinal Chemistry
1994 -	Member, American Association for Cancer Research
1996 -	Ad hoc reviewer, Science, Cancer Research, Clinical Cancer Research, Journal of Pharmacology and Experimental Therapeutics, Molecular Pharmacology, Biochemical Pharmacology, Cancer Chemotherapy and Pharmacology, International Journal of Cancer, Molecular Cancer Therapeutics, FASEB J.
1999 - 2000	Subject Matter Expert, USAMRMC Breast Cancer Knowledge Harvest Project
1999 - 2003	Member, Licensing Executives Society
2000 -	Member, Deutsche Pharmazeutische Gesellschaft
2001 - 2002	Study Section Member, Congressionally-directed peer-reviewed medicinal research program, US Army Research and Materiel Command (USAMRMC)
2002 -	Member, Society for Biomolecular Screening (now SLAS Society for Biomolecular Sciences)
2004 -	Representative, School of Medicine, Chemical Hygiene Officers Committee, University of Pittsburgh
2008 -	Member, University of Pittsburgh Cancer Institute, Cancer Therapeutics Program
2011 -	Ad Hoc Study Section Member, NIH SBIR/STTR program, ZRG1 OTC-T (10) B, ZRG1 IMST-G (10) B, ZRG1 OTC-T (12) B (2014, Co-Chair) , ZRG1 IMST-G (10) B (2015), ZRG1 BCMB-G 10 B (2016, 2017)
2015 -	Ad hoc Study Section Member, NIH Drug Discovery and Pharmacology (DMP)
2015 -	Ad hoc Study Section Member, 2016/01 ZRG1 IMST-B (30) I (Co-Chair) , NIH S10 shared instrumentation
2017 -	Ad hoc Study Section Member, NIH Special Emphasis Panel “Member Conflict: Molecular Probes and Tools for Studying the Nervous System" ZRG1 MDCN-G (05) (2017), NIH Review Panel “High Throughput Screening” BST-F (55) (2017)
2017 -	Member, Editorial Board, SLAS Discovery

Honors

1985	Pharmacy Board Certification, Apothekerkammer Hamburg, Germany
1990	PhD Thesis “magna cum laude” , University of Hamburg, Germany
1995	Young Investigator Award, American Association for Cancer Research
1998 - 1999	Largest Ben Franklin Technology Center of Western Pennsylvania seed grants, Pittsburgh Business Times Book of Lists

C. Contribution to Science

1. **Early targeted therapies - Ras prenylation**. After completion of my postdoctoral work at the University of Kentucky I was part of a team that discovered inhibitors of prenyltransferease as potential antineoplastic agents targeting the Ras oncoprotein. This work was among the first examples of signal transduction-targeted therapies for cancer. My contributions to the field included the discovery and characterization of the first nonpeptidic mimics of Ras-CAAX, documenting cell cycle effect differences of farnesyltransferase (FTase) and geranylgeranyltransferase (GGTase) inhibition, and the discovery that Daudi cells contain two FTase activities with different cation requirements. While the approach ultimately failed in the clinic, some of the molecules we generated (FTI-277 and GGTI-298) are to this day in use as chemical probes for isoprenoid signaling.

    a. Vogt A, Qian Y, Blaskovich MA, Fossum RD, Hamilton AD, Sebti SM. A non-peptide mimetic of Ras-CAAX: selective inhibition of farnesyltransferase and Ras processing. J Biol Chem. 1995 Jan 13;270(2):660-4. PubMed PMID: 7822292.

    b. Vogt A, Sun J, Qian Y, Tan-Chiu E, Hamilton AD, Sebti SM. Burkitt lymphoma Daudi cells contain two distinct farnesyltransferases with different divalent cation requirements. Biochemistry. 1995 Sep 26;34(38):12398-403. PubMed PMID: 7547984.

    c. Kauffmann RC, Qian Y, Vogt A, Sebti SM, Hamilton AD, Carthew RW. Activated Drosophila Ras1 is selectively suppressed by isoprenyl transferase inhibitors. Proc Natl Acad Sci U S A. 1995 Nov 21;92(24):10919-23. PubMed PMID: 7479910; PubMed Central PMCID: PMC40542.

    d. Vogt A, Qian Y, McGuire TF, Hamilton AD, Sebti SM. Protein geranylgeranylation, not farnesylation, is required for the G1 to S phase transition in mouse fibroblasts. Oncogene. 1996 Nov 7;13(9):1991-9. PubMed PMID: 8934546.

2. **Drugging the undruggable - Mitogen Activated Protein Kinase Phosphatases**. As a faculty member in the Department of Pharmacology at the University of Pittsburgh, I began to target mitogen-activated protein kinase phosphatases (MKPs) for cancer and organ regeneration. The discovery of small molecule inhibitors of MKPs has been hindered by the shallow and feature-poor nature of their active sites, and their sensitivity to oxidation. Thus, discovery efforts have yielded compounds that were chemically reactive and/or lacked biological activity. Using a zebrafish live reporter for FGF activity we discovered the first biologically active, allosteric inhibitor of MKP-1 and MKP-3. Subsequent structure activity studies in zebrafish identified an analog that is completely devoid of organism toxicity and enhances cardiomyocyte proliferation in the zebrafish heart after injury. Interestingly, this agent also selectively kills cancer cells by a MAPK dependent mechanism without generating reactive oxygen species, and sensitizes to lymphokine-activated killer cell activity. These seminal findings document that MKPs are targetable by small molecules, and provide pharmacological proof of concept that inhibition of MKPs could be beneficial in the context of cancer and ischemic injury.

    a. Kaltenmeier CT, Vollmer LL, Vernetti LA, Caprio L, Davis K, Korotchenko VN, Day BW, Tsang M, Hulkower KI, Lotze MT, Vogt A. A Tumor Cell-Selective Inhibitor of Mitogen-Activated Protein Kinase Phosphatases Sensitizes Breast Cancer Cells to Lymphokine-Activated Killer Cell Activity. J Pharmacol Exp Ther. 2017 Apr;361(1):39-50. PubMed PMID: 28154014; PubMed Central PMCID: PMC5363763.

    b. Korotchenko VN, Saydmohammed M, Vollmer LL, Bakan A, Sheetz K, Debiec KT, Greene KA, Agliori CS, Bahar I, Day BW, Vogt A, Tsang M. In vivo structure-activity relationship studies support allosteric targeting of a dual specificity phosphatase. Chembiochem. 2014 Jul 7;15(10):1436-45. PubMed PMID: 24909879; PubMed Central PMCID: PMC4118675.

    c. Molina G, Vogt A, Bakan A, Dai W, Queiroz de Oliveira P, Znosko W, Smithgall TE, Bahar I, Lazo JS, Day BW, Tsang M. Zebrafish chemical screening reveals an inhibitor of Dusp6 that expands cardiac cell lineages. Nat Chem Biol. 2009 Sep;5(9):680-7. PubMed PMID: 19578332; PubMed Central PMCID: PMC2771339.

    d. Vogt A, McDonald PR, Tamewitz A, Sikorski RP, Wipf P, Skoko JJ 3rd, Lazo JS. A cell-active inhibitor of mitogen-activated protein kinase phosphatases restores paclitaxel-induced apoptosis in dexamethasone-protected cancer cells. Mol Cancer Ther. 2008 Feb;7(2):330-40. PubMed PMID: 18245669.

3. **Multicellular organisms in contemporary drug discovery**. As the Group Leader for small organism discovery at the University of Pittsburgh Drug Discovery Institute, I have built infrastructure and capabilities for drug discovery using transgenic zebrafish. Building on my expertise in HTS and HCS, I have developed orientation and phenotype-independent image analysis methodology that permits the interrogation of living embryos in multiwell plates, quantitatively and in high throughput. These activities have resulted in numerous successful, collaborative projects including heart and kidney regeneration, cancer, arteriovenous malformations, extracellular matrix defects, and preclinical toxicology. From one of these projects we discovered small molecule enhancers of organ regeneration that are effective in multiple mouse models of acute kidney injury, and that we plan to progress towards clinical trials.

    a. Skrypnyk NI, Sanker S, Skvarca LB, Novitskaya T, Woods C, Chiba T, Patel K, Goldberg ND, McDermott L, Vinson PN, Calcutt MW, Huryn DM, Vernetti LA, Vogt A, Hukriede NA, de Caestecker MP. Delayed treatment with PTBA analogs reduces postinjury renal fibrosis after kidney injury. Am J Physiol Renal Physiol. 2016 Apr 15;310(8):F705-F716. PubMed PMID: 26661656; PubMed Central PMCID: PMC4835925.
    b. Sanker S, Cirio MC, Vollmer LL, Goldberg ND, McDermott LA, Hukriede NA, Vogt A. Development of high-content assays for kidney progenitor cell expansion in transgenic zebrafish. J Biomol Screen. 2013 Dec;18(10):1193-202. PubMed PMID: 23832868; PubMed Central PMCID: PMC3830658.
    c. Vollmer LL, Jiménez M, Camarco DP, Zhu W, Daghestani HN, Balachandran R, Reese CE, Lazo JS, Hukriede NA, Curran DP, Day BW, Vogt A. A simplified synthesis of novel dictyostatin analogues with in vitro activity against epothilone B-resistant cells and antiangiogenic activity in zebrafish embryos. Mol Cancer Ther. 2011 Jun;10(6):994-1006. PubMed PMID: 21490306; PubMed Central PMCID: PMC3112307.
    d. Vogt A, Cholewinski A, Shen X, Nelson SG, Lazo JS, Tsang M, Hukriede NA. Automated image-based phenotypic analysis in zebrafish embryos. Dev Dyn. 2009 Mar;238(3):656-63. PubMed PMID: 19235725; PubMed Central PMCID: PMC2861575.

Complete List of Published Work in My Bibliography: (72 total)
https://www.ncbi.nlm.nih.gov/myncbi/andreas.vogt.1/bibliography/40437092/public/

D. Additional Information: Research Support and/or Scholastic Performance

Research Support

Ongoing Research Support

R01 DK112652
Hukriede, Neil A. (PI)
01/01/17-12/31/19
High content in vivo screening for acute kidney injury ameliorating drugs
Aims: To develop a high-content, high throughput assay for kidney regeneration in zebrafish to discover novel chemotypes that augment kidney regeneration after injury
Role: MPI

R01 HD053287-09
Hukriede, Neil A. (PI)
07/01/06-06/30/17 (NCE)
Small Molecule Screens to Identify Probes for Studies of Repair and Regeneration
The goals of this application are to identify novel small molecule modulators of the TGF-beta and FGF pathways as tools to dissect the role of these signaling pathways in zebrafish larval and adult repair and regeneration
Role: MPI

SAP#4100068731 , PA Department of Health
STERN, ANDREW (PI)
01/01/15-12/31/18
Determining mechanisms of disease progression using Quantitative Systems Pharmacology (QSP)

A major goal is to demonstrate the broad applicability of QSP; accordingly, we aim to determine the value of QSP to enable the development of novel therapeutic strategies in a set of diverse diseases.
Role: Co-Investigator

R01 DK104847-01
Madden, Dean (PI)
04/01/16-03/31/18
High-Throughput Screening for Dab2 Inhibitors as Stabilizers of CFTR
The goals of this application are to identify small-molecule inhibitors of Dab2-mediated endocytosis of CFTR
Role: Co-Investigator

R01 GM114336-01A1
Schwacha, Anthony (PI)
01/01/17-12/31/19
Development of High-Throughput screening assays for identification of small molecule inhibitors of the Mcm2-7 replicative helicase
Aims: To identify small molecule inhibitors of a novel drug target, Mcm2-7, and develop these inhibitors into both experimental probes and human therapeutic agents
Role: Co-Investigator

Completed Research Support within the last three years

13GRNT16830049, American Heart Association
Roman, Beth (PI)
07/01/13-06/30/15
Enhancing ALK1 expression as an approach to hereditary hemorrhagic telangiectasia therapeutics
The goal of this application is to identify small molecules that enhance Alk1 expression in zebrafish embryos
Role: Co-Investigator

R01 AI057083 , NIH
Smithgall, Thomas E. (PI)
05/01/10-04/30/15
Small molecule inhibitors of HIV Nef signaling
The goals of this application are to explore the utility and mechanism of action of diphenylfuropyrimidines and 2,3-diaminoquinoxaline benzenesulfonamides as Nef-directed anti-HIV agents and to test the hypothesis that the Nef oligomerization interface is a rational target for Nef-directed anti-HIV therapy.
Role: Co-Investigator

R44 GM090386 , NIH
Hulkower, Keren (PI)
02/01/11-01/31/14
High Throughput cell invasion assay amenable to high content imaging
To develop and validate a 384-well HTS 3-D invasion assay
Role: Co-Investigator

RC4 DK090770RC4 , NIDDK
Hukriede, Neil (PI)
09/01/10-08/13/13
Small Molecule Mediated Augmentation of Kidney Regeneration
To discover and improve small molecules that enhance kidney progenitor cells.
Role: Co-Investigator