University of California, San Francisco

CURRICULUM VITAE

Name: Aras N Mattis, MD, PhD

Position: Assistant Professor
Pathology
School of Medicine

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EDUCATION

1994 - 1998	University of California, Berkeley	B.A.	Molecular and Cell Biology	
1998 - 2007	University of Illinois, Chicago	M.D.	Medicine	
1998 - 2007	University of Illinois, Urbana-Champaign	Ph.D.	Biochemistry	Richard Gumport and Jeffrey Gardner
2007 - 2009	University of California, San Francisco		Resident, Anatomic Pathology	
2009 - 2009	University of California, San Francisco		Fellow, Surgical Pathology	Linda Ferrell
2010 - 2010	University of California, San Francisco		Fellow, Liver/GI Pathology	Linda Ferrell
2010 - 2013	University of California, San Francisco		Clinical Research Fellow, Liver/GI Pathology	Linda Ferrell
2010 - 2014	University of California, San Francisco		Postodoctoral Fellow	Holger Willenbring
2010 - 2013	California Institute for Regenerative Medicine, University of California, San Francisco		Clinical Fellow	

LICENSES, CERTIFICATION

2009	Medical License, State of California (License A 108366)

2010	Board Certified in Anatomic Pathology by the American Board of Pathology (ABP 31589)

PRINCIPAL POSITIONS HELD

09/2013 - 06/2015	University of California, San Francisco	Health Sciences Clinical Instructor	Pathology
07/2015 - 06/2016	University of California, San Francisco	Adjunct Assistant Professor	Pathology
07/2016 - present	University of California, San Francisco	Assistant Professor (Ladder rank)	Pathology

OTHER POSITIONS HELD CONCURRENTLY

1998 - 2007	University of Illinois of Urbana-Champaign	Medical Scholars Program	MSP
2009 - 2013	University of California, San Francisco	UCSF Molecular Medicine Training Program	UCSF Medicine

HONORS AND AWARDS

1998	Biochemistry Trust Start-up Award	Department of Biochemistry, University of Illinois, Urbana-Champaign
1998	Lycan Teaching Scholarship	University of Illinois, Urbana-Champaign
2007	Alpha Omega Alpha Honor Medical Society	University of Illinois, Chicago
2016	UCSF Pathology Start-up Award	UCSF, Department of Pathology

KEYWORDS/AREAS OF INTEREST

hepatocytes, cholangiocytes, liver, stem cells, induced pluripotent stem cells (iPSCs), steatohepatitis, fatty liver, non-alcoholic fatty liver disease, NAFLD, NASH, microRNAs, miR-29, gene expression, ER stress, biochemistry, bacteriophage, site-specific integration, excision, cancer, gastroenterology, pathology, liver transplant, tumor biology, hepatocellular carcinoma, cholangiocarcinoma, translational research.

CLINICAL ACTIVITIES

CLINICAL ACTIVITIES SUMMARY

As a gastrointestinal and liver pathologist, I provide valuable patient care, by providing both intra-operative and final diagnoses. In addition my clinical activities include supervising residents and fellows in their patient care as well as providing colleagues with my opinion on difficult liver medical and transplant cases. My responsibilities on this service also include educating and communicating with other clinicians about expected pathologic findings and expected clinical outcomes.

CLINICAL SERVICES

2007 - 2009	Resident, Anatomic Pathology, UCSF	Daily
2009 - 2010	Fellow, Surgical Pathology, UCSF	Daily
2009 - 2010	Fellow, Gastrointestinal/Liver Pathology, UCSF	Daily
2010 - 2015	Clinical Research Fellow and Attending Pathologist, Gastrointestinal/Liver Pathology Service	20%
2015 - 2016	Assistant Adjunct Professor and Attending Pathologist on the Gastrointestinal/Liver Pathology Service	25%
2016 - present	Assistant Professor and Attending Pathologist on Gastrointestinal/Liver and Thoracic Pathology Service	25%

PROFESSIONAL ACTIVITIES

MEMBERSHIPS

2007 - present	Alpha Omega Alpha (AOA) Honor Medical Society, University of Illinois, Chicago
2007 - present	College of American Pathologists
2007 - present	United States & Canadian Academy of Pathology
2008 - present	American Association for the Advancement of Science, Member
2012 - present	American Association for the Study of Liver Diseases

SERVICE TO PROFESSIONAL PUBLICATIONS

2014 - 2015	Cellular and Molecular Gastroenterology and Hepatology - Reviewer
2015 - present	BMC Cancer - Reviewer
2015 - 2016	Biochimie - Reviewer
2016 - present	PLOS Genetics - Reviewer
2017 - present	PLOS One - Reviewer
2018 - present	Gastroenterology - Reviewer
2019 - present	Biologicals - Reviewer

INVITED PRESENTATIONS - INTERNATIONAL

2003	Fermentas Life Sciences, Vilnius Lithuania "Analysis of P22 Xis and its DNA Binding site"	Invited Speaker
2013	Erasmus Mundus Program, Vilnius Lithuania	Invited Lecturer

2013	Thermo Fisher Scientific Molecular Biology Center of Excellence, Vilnius Lithuania "MicroRNA-29a Regulates Lipid Flux by Suppressing Lipoprotein Lipase in Hepatocytes"	Invited Speaker
2016	Patient iPSC-Derived Hepatocytes Model NAFLD; 2016 Life Sciences Baltics, Vilnius, Lithuania	Invited Speaker
2017	NAFLD Patients Predisposed to De Novo Lipogenesis; 2017 COINS Conference, Vilnius, Lithuania	Keynote Speaker

INVITED PRESENTATIONS - NATIONAL

2016	FASEB SRC "Liver Biology - Fundamental Mechanisms and Translational Applications" - West Palm Beach, Florida - "Elucidating the molecular mechanisms of NAFLD/NASH with a patient-specific iPSC-based model"	Invited Speaker
2018	AASLD Liver Meeting Oral Platform Presentation "Induced pluripotent stem cell-derived hepatocytes (iPSC-heps) generated from patients with biopsy-proven NAFLD exhibit a unique transcriptomic profile distinguishing them from iPSC-heps generated from healthy subjects" - San Francisco, California. Caroline C. Duwaerts, Chris Her, Eric S. Hoffman, Thomas J. Novak, Lisa A. Hazelwood, Aras N. Mattis and Jacquelyn J. Maher	Co-PI
2020	2020 World Congress on In Vitro Biology Meeting "Modeling Fatty Liver Disease In Vitro" - San Diego, California. Converted to Virtual Meeting	Invited Speaker

INVITED PRESENTATIONS - REGIONAL AND OTHER INVITED PRESENTATIONS

2010	"Of Mice and (Wo)Men, sometimes M.D. stands for Mouse Doctor" Medical Scholars Program Career Talk, University of Illinois, Urbana-Champaign, 2010	Invited Speaker
2013	Pathology Symposium, The Liver Center, University of California, San Francisco	Invited Speaker
2014	"MicroRNA and Gene Profiling in Stage-Stratified NASH Patient Liver Biopsies" 2014 Annual Research Symposium, The Liver Center, University of California, San Francisco	Invited Speaker
2014	"Genetic Determinants of NASH in Patient-Specific iPSC-Derived Hepatocytes" 2014 Annual Research Symposium, The Liver Center, University of California, San Francisco	Invited Speaker
2014	"Modeling Fatty Liver Disease in a Dish" Medical Scholars Program Career Talk, University of Illinois, Urbana-Champaign, November 8, 2014.	Invited Speaker

2015	Pathology Student Interest Group - Introduction to Pathology and a Career as a Physician-Scientist, University of California, San Francisco, October 9, 2015	Invited Speaker
2015	"MicroRNA29: the Hepatic LPL Gatekeeper" Department of Nutritional Sciences and Toxicology, University of California, Berkeley, October 21, 2015.	Invited Speaker
2015	"Modeling Liver Diseases using iPSC-derived cells" Department of Pediatrics, Fellows Research Conference, University of California, San Francisco, November, 19, 2015.	Invited Speaker
2016	"How to Develop a Research Career?Pathology Interest Group" Medical Scholars Program Career Talk, University of Illinois, Urbana-Champaign, 2016	Invited Speaker
2017	"Improved iPSC-derived Endoderm for Modeling of Human Liver diseases" Research Interest Group, University of California San Francisco	Invited Speaker
2017	"iPSC-derived Hepatocyte Modeling of NASH" Pathology Research Day Sept, 2017, University of California San Francisco - Sausalito, CA	Invited Speaker
2019	"Discovery of Novel Genes Regulating Intrahepatic Steatosis in Mice and Humans", Liver Center Annual Symposium, UCSF, Presidio, April 2019	Invited Speaker
2019	"Modeling Non-Alcoholic Fatty Liver Disease In Vitro", UCSF Pathology Service Cluster B Meeting, UCSF, October 2019	Invited Speaker

CONTINUING EDUCATION AND PROFESSIONAL DEVELOPMENT ACTIVITIES

2007	Pathology Lecture series and Mechanisms of Disease Conference
2008	Pathology Lecture series and Mechanisms of Disease Conference
2009	Pathology Lecture series and Mechanisms of Disease Conference
2010	Pathology Mechanisms of Disease Conference
2011	Pathology Mechanisms of Disease Conference
2012	Pathology Mechanisms of Disease Conference
2012	California Society of Pathologists 65th Annual Meeting, San Francisco
2013	Pathology Mechanisms of Disease Conference
2013	29th Annual Current Issues in Anatomic Pathology, San Francisco
2013	California Society of Pathologists 66th Annual Meeting, San Francisco
2014	Pathology Mechanisms of Disease Conference

2014	30th Annual Current Issues in Anatomic Pathology, San Francisco
2014	California Society of Pathologists 67th Annual Meeting, San Francisco
2015	31st Annual Current Issues in Anatomic Pathology, San Francisco
2015	California Society of Pathologists 68th Annual Meeting, San Francisco
2015	Pathology Mechanisms of Disease Conference
2016	32nd Annual Current Issues in Anatomic Pathology, San Francisco
2016	Pathology Mechanisms of Disease Conference
2017	33rd Annual Current Issues in Anatomic Pathology, San Francisco
2017	Pathology Mechanisms of Disease Conference
2018	34th Annual Current Issues in Anatomic Pathology, San Francisco
2018	Pathology Mechanisms of Disease Conference, UCSF
2019	35th Annual Current Issues in Anatomic Pathology, San Francisco
2019	Pathology Mechanisms of Disease Conference, UCSF
2019	Research Interest Group, UCSF

UNIVERSITY AND PUBLIC SERVICE

SERVICE ACTIVITIES SUMMARY

As an active research Physician-Scientist and pathologist, I am an active member of the UCSF Liver Center. In addition to my clinical responsibilities, I provide pathologic interpretation to multiple researchers across campus, advise researchers on known mechanisms of disease pathogenesis, and separately advise residents, fellows, and students on both career paths and approaches to developing a successful research career. As a sign of my dedication I have also provided similar mentorship and advice to future Physician-Scientists at the University of Illinois.

UCSF CAMPUSWIDE

2010 - present	UCSF Research Labs, various	Pathology slide interpretation
2013 - present	Liver Center, Full Member	Member, Pathology advisor
2016 - present	Bilingual (Lithuanian) Clinician Certification	Language Interpretation
2018 - present	Liver Center, Liver Explant Validation and Approvals for Tissue	Pathologist
2019 - present	Liver Center Advisory Board	Liver Center Board Member

DEPARTMENTAL SERVICE

2010 - present	UCSF Pathology Resident and Fellow Research Mentor	Mentor
2013 - 2014	UCSF Pathology Research Interest Group	Co-Director

SERVICE AT OTHER UNIVERSITIES

2010 - 2016	Adhoc advisor and speaker to Pathology Interest Group, University of Illinois, Urbana-Champaign College of Medicine	Urbana, Illinois

COMMUNITY AND PUBLIC SERVICE

2011 - 2011	Stem Cell Awareness Day, Drew High School, San Francisco, California	Invited Speaker
2014 - 2014	Career Day at Lycee Francais High School, San Francisco, California	Career Mentor Speaker
2017 - 2017	Lycee Francais Elementary School, Sausalito, California	Career Speaker

CONTRIBUTIONS TO DIVERSITY

CONTRIBUTIONS TO DIVERSITY
Mentored high school student in our laboratory during the 2018-2019 year

TEACHING AND MENTORING

TEACHING SUMMARY
In addition to laboratory research, I am currently involved in instructing and mentoring Pathology residents and fellows and junior laboratory members, as well as teaching medical student courses related to Pathology, Stem Cell biology, and Immunology. Previous instructional responsibilities included teaching graduate students introductory through advanced biochemistry theoretical and practical laboratory techniques.

MENTORING SUMMARY
As an active Physician-Scientist, I not only teach medical students, residents, fellows, and students, but in addition I provide both Project and Career mentorship. My approach varies from being an advisor on projects, to reviewing career plans and grades to understand the viability of future plans and goals. For example, in my laboratory, I meet with students, specialists, and fellows on a weekly basis to review their career goals and project progress.

RESEARCH AND CREATIVE ACTIVITIES

RESEARCH AND CREATIVE ACTIVITIES SUMMARY
My long-term goal is to identify the molecular mechanisms of fatty liver disease (FLD) that predispose humans to NASH. With the increasing world-wide obesity epidemic, a previously uncommon liver disease called non-alcoholic fatty liver disease (NAFLD) is quickly increasing in prevalence affecting 20% of the US population. Ten percent of patients with NAFLD will develop steatohepatitis leading to progressive fibrosis and eventually cirrhosis with an increased risk for hepatocellular carcinoma. NAFLD is a complex disease resulting from the

interplay of multiple genes and diet (environment) making it difficult to study using traditional cell lines and mouse models. The prevailing hypothetical mechanism involved in NAFLD pathogenesis is insulin resistance, followed by intrahepatic lipid accumulation with a maladaptive hepatic stress response to the lipid overload that leads to cellular apoptosis.

The pathophysiology of human fatty liver disease is typically studied using mouse models, which cannot completely reproduce the background of the human disease and thus limits translational relevance. Alternatively, one can study disease in primary human hepatocytes, but these are difficult to acquire in significant quantities from diseased individuals and do not remain viable and functional in culture for more than several days. To circumvent this issue, laboratories have studied immortalized human liver tumor cell lines such as HepG2. However, recent insights into the metabolic derangements that accompany tumor biology renders these highly mutagenized cell lines inappropriate for the study of human metabolic diseases.

To advance the understanding of human NAFLD, I am taking four complementary approaches to understand NAFLD/NASH and hepatic tumor biology:
1) Understanding the microRNA and gene regulation of lipid metabolism in the livers of mice through novel genes such as ACOT8.
2) Development of an in vitro model of NAFLD using iPS-derived hepatocytes from patients with a familial pre-disposition to the disease.
3) Screening for novel therapeutic target genes using whole genome screening via CRISPR-Cas9 in human iPSC-derived hepatocytes to find target genes that can be used to cure or reverse the disease process.
4) Characterization of Intrahepatic and Extrahepatic cholangiocarcinoma tumor drivers.

As an assistant professor, I am working diligently towards becoming a leading principal investigator and physician-scientist. I aim to become a leader in the field of fatty liver disease pathogenesis and research. Furthermore, I strive to continue to hone my expertise in surgical pathology with a focus on transplant and medical liver, GI diseases, and surgical tumor biology.

RESEARCH AWARDS - CURRENT

1. R01DK115987	Co-PI	0.36 Calendar % effort	Ohliger (PI)
NIH/NIDDK		09/01/2017	08/31/2022
Novel hyperpolarized 13C molecular imaging techniques for differentiating NAFLD and NASH			
The major goals of this project are to establish a large Clinical Center patient database capturing the spectrum of NAFLD/NASH			
Advice on mouse liver fibrosis and steatotis studies, grading and staging mouse livers, and development of tools for this project.			
2.	Co-PI		Mattis and Wang (PI)
UCSF PBBR		08/15/2019	08/14/2020
Single Cell RNA Seq of Human Zonal Hepatocytes with Parallel iPSC-Hepatocyte Zonal Differentiation		$ 150,000 direct/yr 1	$ 150,000 total

The project goal is to perform single cell RNA Sequencing of human livers while producing iPS cells from the same patients. These cells will then be differentiated to Zone 1 and Zone 3 hepatocytes and become a benchmark and resource for researchers world-wide to produce improved iPSC-derived hepatocytes with known RNA Sequence at the single cell level.

I am the directing PI, I am organizing getting the tissue, iPSC reprogramming and hepatocyte differentiation research studies.

3.	Co-PI		Mattis and Medina (PI)
UCSF PBBR		01/01/2020	12/31/2020
Undifferentiated induced pluripotent stem cells (iPSCs) for discovery and functionalization of non-alcoholic fatty liver disease genetic risk variants		$ 135,000 direct/yr 1	$ 135,000 total

To develop undifferentiated iPSCs as screening platform for NASH genetic risk variants

Co-PI

4.	PI		Mattis (PI)
ImmunoX Pilot Grant		04/01/2020	03/31/2021
Mapping liver, omentum, and blood immune populations in NASH versus normal patients		$ 103,200 direct/yr 1	$ 103,200 total

We will obtain fresh biopsies from patients and perform single cell RNA sequencing and CYTOF from liver, omentum, and peripheral blood samples, focusing on immune populations

Developed the idea, wrote grant, PI

5. REAC AWARD	PI		Mattis (PI)
REAC AWARD		01/01/2020	12/31/2020
Generation of engineered mice with gain or loss of ACOT8 function		$ 50,000 direct/yr 1	$ 50,000 total

We will generate ACOT8 flox mice and generate an overexpression model of ACOT8

PI

RESEARCH AWARDS - SUBMITTED

1. R01DK124604	PI	20% % effort	Mattis (PI)
NIH/NIDDK		04/01/2020	03/31/2025
Contribution of NAFLD Genetic Variants to Steatosis and ER Stress		$ 340,000 direct/yr 1	$ 1,700,000 total

The specific experimental aims of this project are to 1) Quantify and analyze lipid accumulation and ER stress in NASH iHeps, 2) to perform Molecular characterization of the TM6SF2 E167K genetic variant using iHeps, and 3) to perform a genome-wide screen in iHeps to identify novel genes protective from steatosis and ER stress.

Developed the Aims and Experimental Approaches, PI

RESEARCH AWARDS - PAST

1.	Principal Investigator		Mattis (PI)
UCSF Department of Pathology, research		06/01/2008	06/01/2009

Immunohistochemistry of Small Round Blue cell tumors.	$ 2500 direct/yr 1	$ 2500 total

The goal of this project was to investigate Glypican-3 staining in pediatric small round blue cell tumors from the liver. This project has been published.

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2. Principal Investigator — Mattis (PI)

UCSF Department of Pathology, research	04/01/2009	12/01/2009
Immunohistochemistry of Pax2 and Pax8 on hepatocellular carcinomas versus renal cell carcinoma in tissue arrays.	$ 5000 direct/yr 1	$ 5000 total

The goal of this project is to determine the sensitivity and specificity of Pax2 and Pax8 antibodies in HCC versus RCC tumor specimens

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3. Principal Investigator — Mattis (PI)

UCSF Department of Pathology, research	08/01/2009	08/01/2010
Classification of rare hepatic hemangiomas and variants.	$ 1500.00 direct/yr 1	$ 1500.00 total

The goal of this project is to describe rare hepatic hemangioma and The The goal of this project is to describe rare hepatic hemangioma and variants histologically.

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4. NOT-OD-09-107 — Clinical Fellow - Trainee — Willenbring (PI)

NIH Loan Repayment Program	10/01/2010	06/01/2012
Identification of molecular mechanisms causing human fatty liver disease	$ 42,000 direct/yr 1	$ 84,000 total

The goals/aims of this project are to 1) Identify patient cohort donors for iPS stem cell generation both with and without a familial variant of NASH, Generate human iPS cell lines from skin biopsy samples, differentiate human iPS cells into hepatocytes, establish in vitro bioreactor model, Repopulate Fah -/-, Rag2-/-, IL2rg -/- mice with iPS-derived human hepatocytes.

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5. TG2-01153 — Clinical Fellow - Trainee — Willenbring (PI)

California Institute for Regenerative Medicine	12/01/2010	08/31/2013
Using iPS technology to recreate human fatty liver disease in mice	$ 88353 direct/yr 1	$ 277009 total

Principal Investigator: Aras N. Mattis, M.D., Ph.D. Role: Clinical Fellow/Post-doctoral researcher Mentor: Dr. Holger Willenbring Director: Dr. Susan Fisher The goals/aims of this project are to 1) Reprogram patient-derived fibroblasts into induced pluripotent stem (iPS) cells, 2) Make iPS-derived human Hepatocytes in vitro and characterize for phenotypic classification, and 3) repopulate Fah -/-, Rag2-/-, IL2rg -/- mouse model with patient specific iPS-derived human hepatocytes to fully model human fatty liver disease in mice. As the recipient of this fellowship award, I have primary responsibility for design and execution of experiments, under the mentorship of Dr. Holger Willenbring.

6.	P30 DK026743	Principal Investigator		Mattis (PI)
	UCSF Liver Center NIH Grant		06/01/2013	05/31/2014
	MicroRNA and Gene Expression Profiling in Stage-Stratified NASH Patient Liver Biopsies		$ 25,000 direct/yr 1	$ 25,000 total
	UCSF Liver Center Pilot/Feasibility Award			
7.	NOT-OD-09-107	Clinical Fellow - Trainee		Mattis (PI)
	NIH Loan Repayment Program		08/01/2013	06/01/2014
	Identification of molecular mechanisms causing human fatty liver disease		$ 42,000 direct/yr 1	$ 42,000 total
8.	1K08DK098270-01	Principal Investigator		
	National Institutes of Health		09/01/2013	08/31/2018
	Regulation of Lipid Metabolism by miR-29a within Hepatocytes		$ 129835.00 direct/yr 1	$ 708018.00 total
	A study on the regulation of lipid metabolism by miR-29a.			
	Principal Investigator			
9.	NOT-OD-09-107	NIH Training Grant LRP		Mattis (PI)
	National Institutes of Health Loan Repayment Program		08/01/2014	06/01/2015
	Identification of molecular mechanisms causing human fatty liver disease.		$ 21,000 direct/yr 1	$ 21,000 total
10.	UCSF 500 Cancer Gene Panel	Principal Investigator		Mattis (PI)
	UCSF Genomic Medicine		1/12/2015	1/11/2016
	Targeted Sequencing of Cholangiocarcinomas		$ 16,500 direct/yr 1	$ 16,500 total
11.	PBBR	Co-Principal Investigator	20 % effort	Mattis and Maher (PI)
	UCSF Program for Breakthrough Biomedical Research (PBBR)		02/01/2016	01/31/2016
	Development of an in vitro model of human NAFLD using iHeps		$ 150,000 direct/yr 1	$ 150,000 total

Co-Principal Investigator

12. RAP	Principal Investigator	10 % effort	Mattis (PI)
CTSI Pilot Awards Program		07/01/2016	06/30/2017
Modeling Fatty Liver Disease Using Human iPS-Derived Hepatocytes		$ 40,000 direct/yr 1	$ 40,000 total

Principal Investigator

13. UCSF Liver Center	PI	10% % effort	Mattis (PI)
UCSF Liver Center		06/01/2018	05/28/2019
Discovery of Novel Genes Regulating Intrahepatic Steatosis in Mice and Humans		$ 30,000 direct/yr 1	$ 30,000 total

The goal of this project is to discover novel coding and non-coding genes regulating hepatic steatosis by performing an unbiased inhibition/knockout screen using the CRISPR-Cas9 system

PI

14. Cancer League	Co-PI	10% % effort	Mattis/Corvera (PI)
The Cancer League		07/30/2018	07/31/2019
Whole Genome Sequencing of Klatskin Variant CholangioCarcinoma		$ 50,000 direct/yr 1	$ 50,000 total

Proposal to sequence 30 cholangiocarcinoma samples to identify therapeutic targets

PI

PEER REVIEWED PUBLICATIONS

1. Lynch TW, Read EK, **Mattis AN**, Gardner JF, Rice PA. Integration host factor: putting a twist on protein-DNA recognition. J Mol Biol. 2003 Jul 11; 330(3):493-502. PMID: 12842466
2. Dichiara JM, **Mattis AN**, Gardner JF. IntDOT interactions with core- and arm-type sites of the conjugative transposon CTnDOT. J Bacteriol. 2007 Apr; 189(7):2692-701. PMID: 17277054. PMCID: PMC1855790
3. **Mattis AN**, Gumport RI, Gardner JF. Purification and characterization of bacteriophage P22 Xis protein. J Bacteriol. 2008 Sep; 190(17):5781-96. PMID: 18502866. PMCID: PMC2519534
4. Baker-LePain JC, Stone DH, **Mattis AN**, Nakamura MC, Fye KH. Clinical diagnosis of segmental arterial mediolysis: differentiation from vasculitis and other mimics. Arthritis Care Res (Hoboken). 2010 Nov; 62(11):1655-60. PMID: 20662047. PMCID: PMC2974779
5. Levy M, Trivedi A, Zhang J, Miles L, **Mattis AN**, Kim GE, Lassman C, Anders RA, Misdraji J, Yerian LM, Xu H, Dhall D, Wang HL. Expression of glypican-3 in undifferentiated embryonal sarcoma and mesenchymal hamartoma of the liver. Hum Pathol. 2012 May; 43(5):695-701. PMID: 21937079. PMCID: PMC3568522
6. Zhu S, Rezvani M, Harbell J, **Mattis AN**, Wolfe AR, Benet LZ, Willenbring H, Ding S. Mouse liver repopulation with hepatocytes generated from human fibroblasts. Nature. 2014 Apr 3; 508(7494):93-7. PMID: 24572354

7. **Mattis AN**, Song G, Hitchner K, Kim RY, Lee AY, Sharma AD, Malato Y, McManus MT, Esau CC, Koller E, Koliwad S, Lim LP, Maher JJ, Raffai RL, Willenbring H. A screen in mice uncovers repression of lipoprotein lipase by microRNA-29a as a mechanism for lipid distribution away from the liver. Hepatology. 2015 Jan;61(1):141-52. PMID: 25131933

8. Zdravkovic T, Nazor KL, Larocque N, Gormley M, Donne M, Hunkapillar N, Giritharan G, Bernstein HS, Wei G, Hebrok M, Zeng X, Genbacev O, **Mattis A**, McMaster MT, Krtolica A, Valbuena D, SimÃ³n C, Laurent LC, Loring JF, Fisher SJ. Human stem cells from single blastomeres reveal pathways of embryonic or trophoblast fate specification. Development. 2015 Dec 1; 142(23):4010-25. PMID: 26483210. PMCID: PMC4712832

9. Frascoli M, Jeanty C, Fleck S, Moradi PW, Keating S, **Mattis AN**, Tang Q, MacKenzie TC. Heightened Immune Activation in Fetuses with Gastroschisis May Be Blocked by Targeting IL-5. J Immunol. 2016 May 13. PMID: 27183609.

10. Spangler B, Fontaine SD, Shi Y, Sambucetti L, **Mattis AN**, Hann B, Wells JA, Renslo AR. A Novel Tumor-Activated Prodrug Strategy Targeting Ferrous Iron Is Effective in Multiple Preclinical Cancer Models. J Med Chem. 2016 Dec 22; 59(24):11161-11170. PMID: 27936709. PMCID: PMC5184369

11. Marco-Rius I, Gordon JW, **Mattis AN**, Bok R, Delos Santos R, Sukumar S, Larson PEZ, Vigneron DB, Ohliger MA. Diffusion-weighted imaging of hyperpolarized [13 C]urea in mouse liver. J Magn Reson Imaging. 2017 Apr 17. PMID: 28419644

12. Tsai JH, Rabinovitch PS, Huang D, Small T, **Mattis AN**, Kakar S, Choi WT. Association of Aneuploidy and Flat Dysplasia With Development of High-Grade Dysplasia or Colorectal Cancer in Patients With Inflammatory Bowel Disease. Gastroenterology. 2017 12; 153(6):1492-1495.e4. PMID: 28843957

13. Choi WT, Tsai JH, Rabinovitch PS, Small T, Huang D, **Mattis AN**, Kakar S. Diagnosis and risk stratification of Barrett's dysplasia by flow cytometric DNA analysis of paraffin-embedded tissue. Gut. 2017 Jun 22. PMID: 28642331

14. Pierce AA, Duwaerts CC, Siao K, **Mattis AN**, Goodsell A, Baron JL, Maher JJ. CD18 deficiency improves liver injury in the MCD model of steatohepatitis. PLoS One. 2017; 12(9):e0183912. PMID: 28873429. PMCID: PMC5584926

15. Schaub JR, Huppert KA, Kurial SNT, Hsu BY, Cast AE, Donnelly B, Karns RA, Chen F, Rezvani M, Luu HY, **Mattis AN**, Rougemont AL, Rosenthal P, Huppert SS, Willenbring H. De novo formation of the biliary system by TGFß-mediated hepatocyte transdifferentiation. Nature. 2018 May 02. PMID: 29720662

16. Choi WT, Wen KW, Rabinovitch PS, Huang D, **Mattis AN**, Gill RM. DNA Content Analysis of Colorectal Serrated Lesions Detects an Aneuploid Subset of Inflammatory Bowel Disease-Associated Serrated Epithelial Change and Traditional Serrated Adenomas. Histopathology. 2018 May 17. PMID: 29772067

17. Witt RG, Wang B, Nguyen QH, Eikani C, **Mattis AN**, MacKenzie TC. Depletion of murine fetal hematopoietic stem cells with c-Kit receptor and CD47 blockade improves neonatal engraftment. Blood Adv. 2018 Dec 26; 2(24):3602-3607. PMID: 30567724. PMCID: PMC6306881

18. Wen KW, Rabinovitch PS, Huang D, **Mattis AN**, Lauwers GY, Choi WT. Use of DNA flow cytometry in the diagnosis, risk stratification, and management of gastric epithelial dysplasia. Mod Pathol. 2018 May 22. PMID: 29789650

19. Wen KW, Rabinovitch PS, Wang D, Huang D, **Mattis AN**, Choi WT. Utility of DNA Flow Cytometric Analysis of Paraffin-embedded Tissue in the Risk Stratification and Management of 'Indefinite for dysplasia' in Patients With Inflammatory Bowel Disease. J. Crohns Colitis. 2019 Mar 30. PMID: 30423034

20. Wen KW, Kim GE, Rabinovitch PS, Wang D, **Mattis AN**, Choi WT. Diagnosis, risk stratification, and management of ampullary dysplasia by DNA flow cytometric analysis of paraffin-embedded tissue. Mod Pathol. 2019 Apr 11. PMID: 30976103

21. Kuang YL, Munoz A, Nalula G, Santostefano KE, Sanghez V, Sanchez G, Terada N, **Mattis AN**, Iacovino M, Iribarren C, Krauss RM, Medina MW. Evaluation of commonly used ectoderm markers in iPSC trilineage differentiation. Stem Cell Res. 2019 May; 37:101434. PMID: 30999275. PMCID: PMC6570500

22. Corbit KC, Wilson CG, Lowe D, Tran JL, Vera NB, Clasquin M, **Mattis AN**, Weiss EJ. Adipocyte JAK2 mediates spontaneous metabolic liver disease and hepatocellular carcinoma. JCI Insight. 2019 Aug 08; 5. PMID: 31393852

23. Schwab ME, Song H, **Mattis A**, Phelps A, Vu LT, Huang FW, Nijagal A. De novo somatic mutations and KRAS amplification are associated with cholangiocarcinoma in a patient with a history of choledochal cyst. J Pediatr Surg. 2020 Mar 24. PMID: 32295706

24. Lee H, Rabinovitch PS, **Mattis AN**, Kakar S, Choi WT. DNA flow cytometric analysis of paraffin-embedded tissue for the diagnosis of malignancy in bile duct biopsies. Hum Pathol. 2020 05; 99:80-87. PMID: 32272125

25. Wen KW, Rabinovitch PS, Wang D, **Mattis AN**, Ferrell LD, Choi WT. Utility of DNA flow cytometry in distinguishing between malignant and benign intrahepatic biliary lesions. Virchows Arch. 2020 Oct; 477(4):527-534. PMID: 32296928

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18. **DNA Flow Cytometric Analysis of Barrett's Esophagus-Related Dysplasia Using Paraffin-Embedded Tissue: DNA Content Abnormality Can Serve as Both Diagnostic Marker of Dysplasia and Predictive Marker of Neoplastic Progression**; Won-Tak Choi, MD, PhD, Peter S. Rabinovitch, MD, PhD, Thomas Small, **Aras N. Mattis, MD, PhD**, and Sanjay Kakar, MD; USCAP Annual Meeting 2017

19. **Aneuploidy Detected by DNA Flow Cytometry Using Paraffin-Embedded Tissue Can Serve as Both Diagnostic Marker of Dysplasia and Predictive Marker of Neoplastic Progression in Inflammatory Bowel Disease**; Jia-Huei Tsai, MD, Peter S. Rabinovitch, MD, PhD, Thomas Small, Danning Huang, MS, MA, **Aras N. Mattis, MD, PhD**, Sanjay Kakar, MD, and Won-Tak Choi, MD, PhD; USCAP Annual Meeting 2017

20. **Modeling Cystic Fibrosis Liver Disease Using IPSC-Cholangiocytes**; Daniela Castano, Cristina Esteva-Font, and Aras N. Mattis; UCSF Liver Center Annual Symposium 2017

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22. **"Indefinite for Dysplasia" in Inflammatory Bowel Disease: Aneuploidy as a Diagnostic and Prognostic Marker of High-Grade Dysplasia or Colorectal Cancer**; USCAP Annual Meeting 2018; Kwun Wah Wen, Peter S Rabinovitch, Danning Huang, Aras N. Mattis, Won-Tak Choi; USCAP Annual Meeting 2018; Platform Presentation.

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26. **Use of Mutational Analysis and BAP1 Immunohistochemistry for Diagnosis of Intrahepatic Cholangiocarcinoma**; Brent Molden, Nancy Joseph, **Aras N. Mattis**, Daiva Mattis, Sanjay Kakar; USCAP Annual Meeting 2018

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31. **The expansion of reparative Ly6CLo monocytes is associated with resistance to rhesus rotavirus-mediated fetal bile duct injury**; Katya Polovina, Anas Alkhani, **Aras N. Mattis**, Clifford A. Lowell, Jacquelyn Maher, and Amar Nijagal; AASLD Liver Meeting 2018

32. **Diagnosis, Risk Stratification, and Management of Ampullary Dysplasia by DNA Flow Cytometric Analysis of Paraffin-Embedded Tissue**; Kwun Wah Wen, Grace E. Kim, Peter S. Rabinovitch, Dongliang Wang, **Aras N Mattis**, Won-Tak Choi; USCAP Meeting 2019

33. **Group 2 innate lymphoid cell(ILC2)-stromal niche crosstalk in models of liver fibrosis**; J Sbierski-Kind, KM Cautivo, MW Dahlgren, A Dubinin, JF Ortiz-Carpena, P Matatia, N Mroz, C Steer, M Taruselli, **AN Mattis** & AB Molofsky; UCSF ImmunoX/UCB Immunology Retreat 2019

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