Rafiou Agoro, PhD
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NARRATIVE

My lab uses systems biology approaches to determine the mechanisms by which iron-mediated renal oxidative stress influences FGF23-mediated phosphate excretion in aging, chronic kidney disease and sickle cell anemia.

EDUCATION

Indiana University School of Medicine, *Postdoc Fellow Medical and Molecular Genetics* 2019-2021
New York University, *Postdoc Fellow, Basic Science and Craniofacial Biology* 2017-2019
Orléans University, France, *Ph.D., Immunology and Physiopathology* 2013-2016
Orléans University, France, *Master's degree, Biotechnology, Molecular and cell Biology* 2012-2013
Mostaganem University, Algeria, *Engineer in Biotechnology* 2007-2012

Further education
Cold Spring Harbor Laboratory; Chromatin, Epigenetics, Gene Regulation 2023
United States Bone and Joint Initiative, Young Investigators Grant Mentoring Program 2022-2024
Cold Spring Harbor Laboratory; Statistical Analysis of Genome Scale Data 2022
Orthopedic Research Society; Musculoskeletal Biology 2022

RESEARCH EXPERIENCE

Assistant Professor, The Jackson Laboratory 2023-present
Redox Systems Biology Laboratory
Principal Investigator: Dr. Rafiou Agoro

Assistant Scientist (Junior faculty), Indiana University School of Medicine 2021-2023
Department of Medical and Molecular Genetics
Principal Investigator: Dr. Rafiou Agoro
Advisor: Dr. Kenneth E. White. Professor of Genetics and Vice Chair of Research

- **Project overview:** My current project aims to elucidate the antioxidative and inflammatory response pathways driven by FGF23 bioactivity in the kidney using single cell biology assays.
- Project and experiment design: *Design and Optimize* *in vivo* and *in vitro* experimental protocols to meet project expectations.
- Isolate novel pathways that control FGF23 synthesis in bone and pathways that are controlled by FGF23 in the kidney.
- NIH-NIDDK K99/R00 Award (***Impact Score = 13***). Started 04/01/2022

Postdoctoral Researcher, Indiana University School of Medicine 2019-2021
Department of Medical and Molecular Genetics
Advisor: Dr. Kenneth E. White. Professor of Genetics and Vice Chair of Research

- **Project overview:** This project is focused to isolate new therapeutic targets in chronic kidney disease (CKD) by **(*1*)** isolating bone osteocyte genes dysregulated during CKD as well as **(*2*)** targeting FGF23 bioactivity across renal nephron. The main technique used for these

experiments are a joint profiling from the same cell type of transcriptomic and chromatin accessibility profiling.

- Project and experiment design: ***Design and Optimize*** *in vivo* and *in vitro* experimental protocols to meet project expectations.
- Demonstration of nephron segment-specific actions of FGF23
- Development of scRNAseq, scATACseq and Multiome assays
- Collaboration with Calico Labs, a Google-funded company based in California. Perform multiomic experiments and next-generation sequencing experiments.
- Initiation of collaborations with investigators at IU to run bone scRNAseq experiments.
- Training and teaching students at different levels of career (postdocs, graduate, undergraduate, and high-school students).

Postdoctoral Researcher, New York University 2017-2019

Department of Medicine, New York University School of Medicine & College of Dentistry
Advisor: Dr. Despina Sitara. Associate Professor of Molecular Pathobiology

- **Project overview:** the project I run tested the impact of FGF23 on iron metabolism and erythropoiesis in mouse models of chronic kidney disease, hypoferremia, hyperphosphatemia and hypophosphatemia.
- Performing key experiments for collaborators (Dr. Moosa Mohammadi; Professor, Department of Biochemistry and Molecular Pharmacology and Dr. Stefano Rivella; Chair in Pediatric Hematology; Children's Hospital of Philadelphia).
- Training of medical and dental school students. I helped students to generate data, write abstracts as well as help them preparing the data for the department symposium and national conferences.
- Project review with mentor and collaborators: I reviewed the project with the mentor weekly and with collaborators monthly.
- Conference attending and presentations: During this time, I attend more than 6 conferences and presented (oral and poster) my data results with experts in the field of iron and mineral metabolism, bone biology, nephrology and endocrinology.
- Article drafting and writing: generated article figures and drafted article manuscripts; contributed to peer-review process (response to reviewers).
- Grant drafting and writing: assist my supervisor in generating key data for NIH grant application.

This work resulted in two publications in Haematologica and FASEB.

PhD candidate, Orléans University 2013-2016

Laboratory of Molecular and Experimental Immunology (INEM/CNRS – France)
Advisors: Dr. Catherine Mura and Dr. Valerie Quesniaux

- **Project overview:** my PhD project was focused on assessing the impact of iron on tuberculosis immune response, tuberculosis disease onset as well as tuberculosis disease progression.
- Demonstrating that iron status influences macrophage polarization, inflammatory response, and mycobacteria load during tuberculosis infection.
- Showing that Inflammation-induced up-regulation of hepcidin and down-regulation of ferroportin transcription are dependent on macrophage polarization

This work resulted in five published articles (see publications below).

RESEARCH GRANTS

Contributions to ongoing funded research

Controlling renal oxidative stress via targeting FGF23 bioactivity 2022-2027

Principal Investigator: Rafiou Agoro, PhD; 75% (PI)
Indiana University School of Medicine

NIH-NIDDK K99/R00 Award (Impact Score = 13),
Project overview: My current project aims to elucidate the antioxidative mechanisms pathway driven by renal FGF23 bioactivity in the kidney using single cell biology assays.

Unravel the Mechanisms Controlling Renal Iron Handling 2022-2023
Principal Investigator: Rafiou Agoro, PhD
Indiana University School of Medicine
American Society of Cell Biology
Project overview: This project aims to understand the nephron segment specific regulation of iron in the kidney using single cell biology approaches.

Contribution of chromosome versus gonadal sex to bone mass and strength 2022-2023
Co-Investigator: Rafiou Agoro, PhD; 10% (co-PI)
Indiana University School of Medicine
NIH-NIAMS, **R21**
Project overview: The overall goal is to understand the basis for bone sexual dimorphism, and how sex differences affect the growing and aging skeleton.
Role: Providing preliminary data and editing the grant with Dr. Plotkin.

Targeting sKL-FGF23 interactions to improve hyperphosphatemia outcomes 2021-2025
Co-Author: Rafiou Agoro, PhD; PI (Dr. White)
Indiana University School of Medicine
NIH-NIDDK, **R01-DK128252**
Project overview: The goal of this project is to provide novel, translational insight into the basic biology of phosphate metabolism, as well as into both rare and common syndromes of altered Klotho and FGF23 expression.
Role: I provided preliminary data, developed one of the aims, and wrote the grant with Dr. White.

Unraveling FGF23-Klotho interactions to target CKD and aging 2020-2023
Co-Author: Rafiou Agoro, PhD; PI (Dr. White)
Indiana University School of Medicine
Calico Life Sciences, LLC
Project overview: The goal of this project is to examine the molecular relationships between FGF23 and its downstream targets under normal conditions and during CKD.
Role: I provided preliminary data, developed the aims, and wrote the grant with Dr. White.

FGF23 induction in phosphate-responsive single cells 2020-2022
Co-Author: Rafiou Agoro, PhD; PI (Dr. White)
Indiana University School of Medicine
NIH-NIAMS, **1R21-AR075275**
Project overview: The goal of this project is to reveal the bone cells that respond to phosphate load.
Role: I provided preliminary data, developed one of the aims, and edited the grant with Dr. White.

FELLOWSHIPS

Thesis Fellowship Award – Ministry of Research (France) 2013-2016
Role: Graduate Fellow
Covered stipend (**$40,000**) per year.

Full Undergraduate Fellowship Award – Togo – Algeria diplomatic cooperation 2007-2012
Role: Undergraduate Covered stipend (**$10,000**) per year.

HONORS & AWARDS

2023 Co-chair AIMM2023 kidney-bone interactions session
2022 Selected to participate to the U.S. Bone and Joint Decade's Young Investigators Initiative program
2022 Selected as a postdoctoral Rising Star by the University of Utah
2022 Charles Turner Young Investigator Award
2022 ASBMR-John Haddad Young Investigator Award (10 selected in USA in the field of Mineral Metabolism)
2021 American Society of Nephrology Karen L. Campbell Award
2021 ASBMR Young Investigator Travel Grant
2021 Endocrine Fellow Foundation Award for training in endocrinology
2020 Award of Memorial Sloan Kettering Cancer Center to attend Academic Job Search Bootcamp
2018 Endocrine Fellow Foundation awardee for travel grant and training in endocrinology at ASBMR meeting
2018 Travel grants from NYU and Keystone Symposium to attend the conference "Novel Aspects of bone Biology" Organized by Drs. Gerard Karsenty and David T. Scadden. Snowbird Resort, Snowbird, UT USA
2017 Travel grant for AAAS-TWAS Workshop in Trieste (Italy).
2017 Travel grant for conference attendance from NYU to present at the International BioIron Society meeting
2017 Best academic research presentation award (Annual meeting of Center for Skeletal and Craniofacial Biology) – New York – USA.
2015 Nationwide Ambassador for student-entrepreneurship program PEPITE from the Ministry of Research and Education – France
2015 Travel grant for conference attendance from Orleans University and International BioIron Society (Meeting organized in Hangzhou, China 2015)
2014 Grant for conference attendance from European Iron Club
2013 Thesis Fellowship Award for 3-year Research funding – Ministry of Research – France
2012 Award of the Most Outstanding student and graduated Engineer in Biotechnology
2007 – 2012 Valedictorian for 5 consecutive years (Mostaganem University)
2007 Engineering studies fellowship: Togo – Algeria diplomatic cooperation

PUBLICATIONS

Selected Publications

- **Agoro and White,** Regulation of FGF23 production and phosphate metabolism by bone-kidney interactions. *Nat Rev Nephrol* 2023 Jan 9. doi: 10.1038/s41581-022-00665-x.
- **Agoro *et al*.,** Single Cell Cortical Bone Transcriptomics Defines Novel Osteolineage Gene Sets Altered in Chronic Kidney Disease, https://www.biorxiv.org/content/10.1101/2022.07.30.502024v1. *In Press*
- Noonan ML, Ni P, Solis E, Marambio YG, **Agoro R**, Chu X, Wang Y, Gao H, Xuei X, Clinkenbeard EL, Jiang G, Liu S, Stegen S, Carmeliet G, Thompson WR, Liu Y, Wan J, White KE. *Bone Res*. 2023 Jan 18;11(1):7. doi: 10.1038/s41413-022-00241-w.
- **Agoro *et al*.,** Osteocytic FGF23 and Its Kidney Function**.** Front Endocrinol (Lausanne) 2020, 11:592. https://doi:10.3389/fendo.2020.00592.
- ***Agoro et al.,*** C-FGF23 peptide alleviates hypoferremia during acute inflammation. Haematologica. 2020, https://doi:10.3324/haematol.2019.237040.
- **Agoro *et al*.,** Iron supplementation therapy, a friend and foe in mycobacterial infection? Pharmaceuticals **2019**, 12, 75; https://doi:10.3390/ph12020075.
- **Agoro *et al*.,** The FASEB Journal. 2018. Inhibition of fibroblast growth factor 23 (FGF23) signaling rescues renal anemia. https://doi.org/10.1096/fj.201700667R
- **Agoro *et al*.,** PLOS One. Cell iron status influences macrophage polarization. https://doi.org/10.1371/journal.pone.0196921
- **Agoro *et al*.,** *The Journal of Infectious Diseases.* 2017 Aug. Iron-rich diet decreases mycobacterial burden and correlates with hepcidin upregulation, lower pro-inflammatory mediators and higher T cell recruitment in a model of M. bovis BCG infection. https://doi.org/10.1093/infdis/jix366.
- **Agoro *et al*.,** *Blood Cells Mol Dis*. 2016 Oct;61:16-25. doi: 10.1016/j.bcmd. 2016.07.006. Epub 2016 Jul 26. Inflammation-induced up-regulation of hepcidin and down-regulation of ferroportin transcription are dependent on macrophage polarization. https://doi:10.1016/j.bcmd. 2016.07.006.

- **Agoro *et al.,*** *Eur J Immunol.* 2016 Aug 28. doi: 10.1002/eji.201646366**.** IL-1R1-MyD88 axis elicits early papain-induced lung inflammation. https://doi:10.1002/eji.201646366.
- **Agoro R**. How African scientists can give back to their home continent. Nature. 2020 Jul 31. https://doi:10.1038/d41586-020-02267-8. Online ahead of print. PMID: 32737454.
- Noonan ML, Clinkenbeard EL, Ni P, Swallow EA, Tippen SP, **Agoro R,** Allen MR, White KE. Erythropoietin and a hypoxia-inducible factor prolyl hydroxylase inhibitor (HIF-PHDi) lowers FGF23 in a model of chronic kidney disease (CKD). Physiol Rep. 2020 Jun;8(11):e14434. https://doi:10.14814/phy2.14434.
- Noonan ML, Ni P, Rafiou Agoro, **Agoro R,** Sacks SA, Swallow EA, Wheeler JA, Clinkenbeard EL, Capitano ML, Prideaux M, Atkins GJ, Thompson WR, Allen MR, Broxmeyer HE, White KE. The HIF-PHI BAY 85-3934 (Molidustat) Improves Anemia and Is Associated With Reduced Levels of Circulating FGF23 in a CKD Mouse Model. J Bone Miner Res. 2021, https://doi.org/10.1002/jbmr.4272.

Prepared/submitted publications.

- **Agoro *et al*.,** The spatial-temporal heterogeneity dictating kidney FGF23 bioactivity as identified by scRNAseq. (Under revision; *Kidney International*).
- Park, **Agoro *et al*.,** Dietary Phosphorus Effects on Erythropoiesis and Iron Metabolism (Submitted to FASEB).
- Park, **Agoro *et al*.,** Phosphorus-independent role of FGF23 in erythropoiesis and iron metabolism (Submitted to Haematologica).
- **Agoro *et al*.,** Evidence of renal antioxidant response control by FGF23-KL interactions in proximal tubule. (In preparation).

Book (adapted from thesis work)

- **Rafiou Agoro,** Fer et Infection mycobacterienne : Etude des interactions de l'axe hepcidine-Ferroportine-Fer et Infection mycobacterienne. Editions Universitaires Europeennes. **ISBN: 978-3-330-87089-5**

TEACHING EXPERIENCE

Guest lecturer, Rockefeller University, New York (USA) 2022

Course: Science from and for Africa. Role of African Diaspora Scientists.

Responsibilities: Invited to give a lecture at Rockefeller University to provide my perspective on African Diaspora Scientists and how they could catalyze science and technology development in Africa. 50 students, scientists, diplomats attended the event.

Guest lecturer, Orléans University, France 2014-2016

Course: Molecular Immunology

Responsibilities: Invited to teach two lectures per year on my work to master's degree students. Developed and delivered lectures with interactive components. Developed quiz, assignments, and exam questions. 40 students.

Graduate Teaching Assistant, Orléans University, France 2014-2016

Course: Molecular Genetics

Responsibilities: Assist Pr. Catherine Mura in preparing course slides and help to watch over the students during the exam.

Lecturer, Orléans University, France 2013-2016

Course: Tuberculosis Immunology

Responsibilities: prepare courses to teach high school students once a week over a 3-year period.

RELEVANT MENTORING EXPERIENCE

Mentoring MMGE PhD students 2020-2023

Responsibilities: Training in single cell RNA/ATAC, and multiome experiments.
Responsibilities: Training in molecular biology experiments.
Responsibilities: Training in iron metabolism biology.

Mentoring DDS students at NYU 2017-2019

Responsibilities: Training in molecular biology, and bone biology during the summer. Helping in preparing and presenting research at conference.

Mentoring Undergraduate Students at Orleans University (France) 2013-2016

Responsibilities: Full one semester training in molecular biology, and immunology during one semester.

SERVICE & OUTREACH

Organizer, Medical and Molecular Genetics Symposium, IUSM 2022
Indiana University School of Medicine, Indianapolis

Member African Diaspora Scientists Federation 2017-2021
International Organization with a goal to promote science in Africa

Organizer, IBREA Foundation 2018-2019
New York University section, New York

International Editorial Positions 2015-present
2022-present, Ad Hoc Reviewer, Clinical Journal of American Society of Nephrology
2022-present, Ad Hoc Reviewer, Journal of American Society of Nephrology
2021-present, Ad Hoc Reviewer, Stem Cell Reports
2021-present, Ad Hoc Reviewer, FASEB Journal
2021-present, Ad Hoc Reviewer, Frontiers in Immunology
2021-present, Ad Hoc Reviewer, Infectious Disease Reports
2021-present, Ad Hoc Reviewer, Medicina
2020-present, Ad Hoc Reviewer, Pathogens
2019-present, Reviewer, Vaccines
2019-present, Ad Hoc Reviewer, Genes
2019-present, Ad Hoc Reviewer, International Journal of Molecular Sciences
2019-present, Ad Hoc Reviewer, Nutrients
2019-present, Ad Hoc Reviewer, Journal of Clinical Medicine
2019-present, Ad Hoc Reviewer, Antibiotics
2019-present, Ad Hoc Reviewer, Microorganisms
2015-present, Ad Hoc Reviewer, Plos One

PRESENTATIONS

- **Agoro *et al.,*** Indiana Center for Musculoskeletal Health – Retreat: Dynamic Single Cell Transcriptomics define nephron segment-specific responses driven through FGF23/KL interactions. Oral and In-person presentation, April 29, 2022.
- **Agoro *et al.,*** Indiana University Nephrology Seminar: “Dynamic Single Cell Transcriptomics define nephron segment-specific responses driven through FGF23/KL interactions”. Oral and In-person presentation, Indiana November 19, 2022; Oral and In-person presentation, November 20-22, 2022.

- **Agoro *et al.,*** Single Cell Cortical Bone Transcriptomics Defines Metabolic Heterogeneity and Novel Osteolineage Gene Sets Altered in Chronic Kidney Disease. Single Cell Cortical Bone Transcriptomics Defines Novel Osteolineage Gene Sets Altered in Chronic Kidney Disease. NOVEMBER 20/22 - 2022. ORAL & IN-PERSON PRESENTATION. H FLEISCH WORKSHOP, BRUGES-BELGIUM.
- **Agoro *et al.,*** Single Cell Cortical Bone Transcriptomics Defines Metabolic Heterogeneity and Novel Osteolineage Gene Sets Altered in Chronic Kidney Disease. Postdoctoral Rising Stars Symposium. University of Utah. SEPT-29/30 2022. Salt Lake City – USA. Invited Speaker. Oral Presentation.
- **Agoro *et al.,*** Osteoblast/Osteocyte scRNAseq Reveals Heterogeneous Bone Cell Populations and Distinct Skeletal Gene Sets Altered in CKD. AIMM/ASBMR Meeting 2022 Snowmass, CO – USA. Oral Presentation.
- **Agoro *et al.,*** The spatial-temporal heterogeneity dictating kidney FGF23 bioactivity as identified by scRNAseq. American Society of Nephrology Nov – 2021. Virtual meeting. Oral Presentation.
- **Agoro *et al.,*** Osteocyte scRNAseq Reveals Heterogeneic Differentiation Status and an Initial Framework for Chronic Disease Pathology. ASBMR Sept-2021 meeting. San Diego – USA. Poster Presentation.
- **Agoro *et al.,*** Osteocyte scRNAseq Reveals Heterogeneic Differentiation Status and an Initial Framework for Chronic Disease Pathology. Endocrine Fellow Foundation forum Sept - 2021 meeting. Virtual meeting. Oral Presentation.
- Virtual attendance of Advances in Mineral Metabolism (AIMM) meeting, 5-9 April 2021
- Virtual attendance Kidney Week (American Society of Nephrology), November 2020
- Virtual attendance ASBMR meeting September 2020
- **Agoro *et al.,*** Kidney Week 2019 – Washington - USA
- **Agoro *et al.,*** Inhibition of FGF23 signaling corrects LPS-induced hypoferremia through the erythropoiesis-inflammation axis. Indiana University Medical and Molecular Genetics Symposium May 2019 Indianapolis - USA
- **Agoro *et al.,*** Inhibition of FGF23 signaling corrects LPS-induced hypoferremia through the erythropoiesis-inflammation axis. Endocrine Fellow Foundation forum (organized by John Bilezikian at Columbia University's College of Physicians and Surgeons) & ASBMR 2018 meeting, Sept 26th – Oct 1st 2018, Montreal - Canada
- **Agoro *et al.,*** Disruption of FGF23 signaling promotes LPS-induced inflammation and modulates hepcidin in macrophages. CSCB meeting – New York. June 2018
- **Agoro *et al.,*** Disruption of FGF23 signaling promotes LPS-induced inflammation and modulates hepcidin in macrophages. Novel aspects of bone biology, keystone symposia June 13-16, 2018, Snowbird, Utah, USA.
- **Agoro *et al.,*** Inhibition of FGF-23 Signaling Rescues Renal Anemia. CSCB meeting, June 2017, New York – USA.
- **Agoro *et al.,*** Anti-inflammatory effect of FGF-23 inhibition prevents liver hepcidin upregulation in a Chronic Kidney Disease mouse model. Published in American Journal of Haematology. 2017. International BioIron Society meeting 2017.
- **Agoro *et al.,*** Inflammation-induced irf-1 factor downregulates ferroportin iron Exporter. Published in American Journal of Haematology. 2015. International BioIron Society meeting 2015, Hangzhou, China.
- **Agoro *et al.,*** Regulation of hepcidin by inflammation in immune cells: critical role of MyD88 pathway. Published in American Journal of Haematology. 2015. International BioIron Society meeting 2015, Hangzhou, China.
- **Agoro *et al.,*** Active IL-1β production Induced by Bacterial Lipopolyssaccharide (LPS) in RAW264.7 Cells Is Iron Dependent (European Iron Club Meeting 2014 Verona, Italy September 11-14, 2014).
- **Agoro *et al.,*** Influence of iron on in vitro IL-1β production induced by bacterial lipopolysaccharide (BiotechnoCentre Meeting Seillac, France October 9-10,2014).

RELEVANT TRAINING AND WORKSHOP FOR PROFESSIONAL DEVELOPMENT

2023 Chromatin, Epigenetics, Gene Expression, Cold Spring Harbor Laboratory (attended courses from July 26 to August 15)
2022 Scientific Writing Retreat, Cold Spring Harbor Laboratory (attended courses: November 15-20)
2022 Statistical Analysis of Genome Scale Data, Cold Spring Harbor Laboratory (attended courses from July 1 to July 14)
2022 USBJI Grant Writing Workshop, Chicago, USA
2022 49th International Musculoskeletal Biology Workshop, Snowbird- UTAH; USA
2021 Mentoring training ASN (Kidney Week 2021)
2020 Academic Job Search Bootcamp Office of Career and Professional Development (MSKCC). Application Components, Virtual Interviews, Initial On-site Interviews - Mastering the Chalk Talk during On-site Interviews - Final On-site Interviews and Preparing to Negotiate Offers, First Steps after Accepting an Offer.
2020 Bioinformatics for Biologists Bootcamp (IUPUI & Center for Medical Genomics)
2020 Single cell Analytics Workshop (IUSM & Center for Medical Genomics)
2020 Introduction to Python Course (The Data Incubator, Pragmatic Institute)
2019 Grant Winning Grant Workshop, IUSM
2019 Single cell Analytics Workshop (IUSM & Center for Medical Genomics)
2019 Introductory Coding for Researchers (New York Academy of Sciences & Software Carpentry)
2018 Endocrine Fellow Foundation Forum
2017 – Present: Online courses about R and Python
2017 AAAS-TWAS Course on Science Diplomacy (Trieste, Italy)
2017 NYU - Course on Science Policy - Federation of American Societies for Experimental Biology
2017 NYU - Course on Project Management – Project Management Institute - Essentials in Project Management / Project Risk assessment / Influencing without authority / Leading a project team.
2017 NYU - Course on Grant Writing – NYU – Office of Postdoctoral Affairs
2017 NYU - Course on Business of Science – SciPhD

LEADERSHIP AND MEMBERSHIP

2022-2023 Young Investigators Initiative Grant Mentoring Program Fellow. US Bone and Joint Initiative
2022-2023 Selected to participate in the Leadership in Academic Medicine Program (LAMP) of IU
2020-present Pragmatic Alumni Community membership
2020-present American Association for the Advancement of Science membership
2019-present Data Camp & Code Academy Member (online data analytics courses)
2019-present American Society of Nephrology/Member
2019-2020 American Heart Association Student/Trainee Member
2019-present National Science Policy Network member
2019-present: Communication Chair NetworkIn Indiana University School of Medicine
2018-present American Society for Bone and Mineral Research (ASBMR), In-Training Member
2018-present Founder/ Mentor/Coordinator at African Diaspora Scientists Federation (ADSF)
2017-2021 New York Academy of Sciences member

LABORATORY SKILLS

Training in statistical genomics
Next Generation Sequencing Experiments:

- ✓ Single Cell Gene Expression with Cell Surface Protein labelling or oligonucleotide staining
- ✓ Single Cell Immune Profiling with Antigen Specificity & Cell Surface Protein
- ✓ Single Cell Assay for Transposase Accessible Chromatin (ATAC) Sequencing
- ✓ Single Cell Multiome ATAC + Gene Expression

In vivo models: mice (injection, dissection, sample).
In vitro models: primary and lineage cell culture.
Molecular and cellular Biology: Quantitative PCR / Western blot / ELISA. Cellular Biology: cells lines & primary cells: Bone marrow derived macrophages, Bone marrow derived dendritic cells) / Cell population analysis by Flow cytometry / Immunofluorescence / Hematology expertise / Erythropoiesis cell population analysis.
Software: R, Seurat, Python, Cloud Analysis, Loupe Browser

REFERENCES

Dr. Nadia Rosenthal, Scientific Director, The Jackson Laboratory – Mammalian Genetics
Dr. Kenneth E. White, Professor of Genetics, Indiana University; kenewhit@iu.edu
Dr. Yunlong Liu, Professor of Genetics, Indiana University; yunliu@iu.edu
Dr. Takashi Hato, Associate Professor of Medicine; thato@iu.edu
Dr. Lynda Faye Bonewald, Director, Indiana Center for Musculoskeletal Health, ICMH; lbonewal@iu.edu
Dr. Despina Sitara, Associate Professor of Molecular Pathobiology, New York University; ds199@nyu.edu
Dr. Richard DiMarchi, Professor of Chemistry; rdimarch@indiana.edu
Dr. Valerie Quesniaux, Professor of Immunology, Orleans University; valerie.quesniaux@cnrs-orleans.fr
Dr. Bernhard Ryffel, Professor of Immunology, Orleans University; bryffel@cnrs-orleans.fr
Dr. Catherine Mura, Professor of Genetics, Orleans University; Catherine.mura@cnrs-orleans.fr