

**The Faculty of Medicine of Harvard University**  
**Curriculum Vitae**

**Date Prepared:** September 14, 2026  
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**Education:**

|                   |       |                                    |                                                |
|-------------------|-------|------------------------------------|------------------------------------------------|
| 09/2007 - 05/2011 | B.Sc. | Bioengineering<br>Kenneth McLeod   | SUNY-Binghamton<br>Binghamton, NY, USA         |
| 01/2015 - 03/2017 | M.Sc. | Bioinformatics<br>Guillaume Lettre | University of Montreal<br>Montreal, QC, Canada |
| 01/2019 - 10/2023 | Ph.D  | Bioinformatics<br>Guillaume Lettre | University of Montreal<br>Montreal, QC, Canada |

**Postdoctoral Training:**

|                   |                     |                                                           |                        |
|-------------------|---------------------|-----------------------------------------------------------|------------------------|
| 04/2025 - Present | Research Fellow     | System biology &<br>network medicine<br>Tinashe Chikowore | Harvard Medical School |
| 04/2025 - Present | Postdoctoral Fellow | System biology &<br>network medicine<br>Tinashe Chikowore | Harvard Medical School |

**Committee Service:**

**Local**

|                |                                        |                                 |
|----------------|----------------------------------------|---------------------------------|
| 2025 - Present | Harvard Black Postdoctoral Association | Harvard Medical School<br>Chair |
| 2026 - Present | Campus Culture Working Group           | Harvard Medical School          |

**International**

|                |                            |                                     |
|----------------|----------------------------|-------------------------------------|
| 2024 - Present | Health is Wealth Committee | Black Wealth Club<br>Committee Lead |
|----------------|----------------------------|-------------------------------------|

**Professional Societies**

|             |                                    |
|-------------|------------------------------------|
| 2019 - 2026 | American Society of Human Genetics |
|-------------|------------------------------------|

### **Grant Review Activities:**

|             |                           |                                                |
|-------------|---------------------------|------------------------------------------------|
| 2026 - 2027 | Doctoral (CGRS D) Program | Canadian Institutes of Health Research, (CIHR) |
|-------------|---------------------------|------------------------------------------------|

### **Honors and Prizes:**

|             |                                                                                                         |                                                   |                                                                |
|-------------|---------------------------------------------------------------------------------------------------------|---------------------------------------------------|----------------------------------------------------------------|
| 2011        | Commencement speaker                                                                                    | State Univ of New York - Binghamton               | Professional Schools Student Speakers at Binghamton University |
| 2015 - 2016 | FESP Scholarship by the University of Montreal - 13,062 per year (Canadian dollar)                      | University of Montreal                            | Research Training                                              |
| 2020 - 2023 | Bourse de MERITE - 60,000 for 3 years (Canadian dollar)                                                 | Université de Montréal                            | Research Training                                              |
| 2023        | Travel Award - 442 (Pound sterling)                                                                     | Brotman Baty Institute                            | Research Training                                              |
| 2025        | Postdoctoral Semifinalist for the 2025 Trainee Research Excellence Award - 1,015 (United States dollar) | American Society of Human Genetics Annual Meeting | Research Training                                              |
| 2026        | 2026 UCLA Emerging Genomic Scientist                                                                    | UCLA                                              |                                                                |
| 2026 - 2028 | Canadian Postdoctoral Research Award (\$70,000 per year for up to 24 months)                            | Canadian Institutes of Health Research            |                                                                |

### **Report of Local Teaching and Training**

#### **Teaching of Students in Courses:**

|      |                                                                                         |                     |
|------|-----------------------------------------------------------------------------------------|---------------------|
| 2013 | Columbia University Toolkit for Data Scientists and Entrepreneurs Undergraduate Student | Columbia University |
| 2023 | Drug repurposing Medical Student                                                        | McGill University   |

#### **Research Supervisory and Training Responsibilities:**

|             |                                                                    |                          |
|-------------|--------------------------------------------------------------------|--------------------------|
| 2016 - 2019 | Trained on R package development for metabolomics quality control. | Montreal Heart Institute |
|-------------|--------------------------------------------------------------------|--------------------------|

|             |                                                                                                                                                                                                                                                                                                     |                                     |
|-------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|
|             | Bachelor of science student                                                                                                                                                                                                                                                                         | 90%                                 |
| 2022 - 2025 | Provided technical support and training for code writing, and code debugging.<br>Provided statistical assistance to design studies. Provided, and enforced guidelines for writing manuscripts, and thesis.<br>Taught concept on genetic epidemiology.<br>One summer intern, and 8 doctoral students | McGill University<br>95%            |
| 2025        | Collaborated with a student for code writing and manuscript reviewing.<br>Master's of science candidate                                                                                                                                                                                             | Brigham and Women's Hospital<br>40% |

### **Report of Education of Patients and Service to the Community**

*No presentations below were sponsored by 3<sup>rd</sup> parties/outside entities.*

#### **Activities**

|             |                                                                                                                                                                                 |
|-------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 2022 - 2024 | Atlas of Variant Effects (AVE) Alliance - Brotman Baty Institute / Seminar Series<br>Committee Member<br>Prepared, and hosted monthly virtual seminar series on variant effects |
| 2023        | Mutational Scanning Symposium / Moderator                                                                                                                                       |
| 2024        | Mutational Scanning Symposium / Planning committee member and organizer<br>Reviewed, scored and ranked submitted abstracts, and visual arts                                     |

### **Educational Material for Patients and the Lay Community:**

#### ***Books, articles, and presentations in other media***

|      |                               |            |                                                                                                                                                                                                                                      |
|------|-------------------------------|------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 2022 | Variant Effect Seminar Series | Host & Q&A | Seminar series:<br><a href="https://www.youtube.com/channel/UCdS-1bGBkOvAMYXkFZoAklg/videos?view=0&amp;sort=dd&amp;shelf_id=0">https://www.youtube.com/channel/UCdS-1bGBkOvAMYXkFZoAklg/videos?view=0&amp;sort=dd&amp;shelf_id=0</a> |
|------|-------------------------------|------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

### **Report of Scholarship**

\* denotes equal authorship contribution

\*\* denotes mentored trainee.

### **Peer-Reviewed Scholarship in print or other media:**

#### **Research Investigations**

1. Canver MC, Lessard S, Pinello L, Wu Y, Ilboudo Y, Stern EN, Needleman AJ, Galactéros F, Brugnara C, Kutlar A, McKenzie C, Reid M, Chen DD, Das PP, A Cole M, Zeng J, Kurita R, Nakamura Y, Yuan GC, Lettre G, Bauer DE, Orkin SH. Variant-aware saturating mutagenesis

- using multiple Cas9 nucleases identifies regulatory elements at trait-associated loci. *Nat Genet.* 2017 Apr; 49(4):625-634. PMID: 28218758
2. Ilboudo Y, Bartolucci P, Rivera A, Sedzro JC, Beaudoin M, Trudel M, Alper SL, Brugnara C, Galactéros F, Lettre G. Genome-wide association study of erythrocyte density in sickle cell disease patients. *Blood Cells Mol Dis.* 2017 06; 65:60-65. PMID: 28552477
  3. Ilboudo Y, Bartolucci P, Garrett ME, Ashley-Koch A, Telen M, Brugnara C, Galactéros F, Lettre G. A common functional PIEZO1 deletion allele associates with red blood cell density in sickle cell disease patients. *Am J Hematol.* 2018 11; 93(11):E362-E365. PMID: 30105803
  4. Ilboudo Y, Garrett ME, Bartolucci P, Brugnara C, Clish CB, Hirschhorn JN, Galactéros F, Ashley-Koch AE, Telen MJ, Lettre G. Potential causal role of l-glutamine in sickle cell disease painful crises: A Mendelian randomization analysis. *Blood Cells Mol Dis.* 2021 02; 86:102504. PMID: 32949984
  5. Mikhaylova AV, Auer PL. Whole-genome sequencing in diverse subjects identifies genetic correlates of leukocyte traits: The NHLBI TOPMed program. *Am J Hum Genet.* 2021 10 07; 108(10):1836-1851. PMID: 34582791
  6. Vondorp DH, Shmukler BE, Ilboudo Y, Bhasin S, Thomas B, Rivera A, Wohlgemuth JG, Dlott JS, Snyder LM, Sieff C, Bhasin M, Lettre G, Brugnara C, Alper SL. A *Grammastola spatulata* mechanotoxin-4 (GsMTx4)-sensitive cation channel mediates increased cation permeability in human hereditary spherocytosis of multiple genetic etiologies. *Haematologica.* 2021 10 01; 106(10):2759-2762. PMID: 34109777
  7. Pincez T, Lee SSK, Ilboudo Y, Preuss M, Pham Hung d'Alexandry d'Orengiani AL, Bartolucci P, Galactéros F, Joly P, Bauer DE, Loos RJF, Lindsley RC, Lettre G. Clonal hematopoiesis in sickle cell disease. *Blood.* 2021 11 25; 138(21):2148-2152. PMID: 34521115
  8. Yoshiji S, Butler-Laporte G, Lu T, Willett JDS, Su CY, Nakanishi T, Morrison DR, Chen Y, Liang K, Hultström M, Ilboudo Y, Afrasiabi Z, Lan S, Duggan N, DeLuca C, Vaezi M, Tselios C, Xue X, Bouab M, Shi F, Laurent L, Münter HM, Afilalo M, Afilalo J, Mooser V, Timpson NJ, Zeberg H, Zhou S, Forgetta V, Farjoun Y, Richards JB. Proteome-wide Mendelian randomization implicates nephronectin as an actionable mediator of the effect of obesity on COVID-19 severity. *Nat Metab.* 2023 02; 5(2):248-264. PMID: 36805566
  9. Baron C, Cherkaoui S, Therrien-Laperriere S, Ilboudo Y, Poujol R, Mehanna P, Garrett ME, Telen MJ, Ashley-Koch AE, Bartolucci P, Rioux JD, Lettre G, Des Rosiers C, Ruiz M, Hussin JG. Gene-metabolite annotation with shortest reactional distance enhances metabolite genome-wide association studies results. *bioRxiv.* 2023 Mar 24. PMID: 36993181
  10. Butler-Laporte G, Farjoun J, Nakanishi T, Lu T, Abner E, Chen Y, Hultström M, Metspalu A, Milani L, Mägi R, Nelis M, Hudjashov G, Estonian Biobank Research Team, Yoshiji S, Ilboudo Y, Liang KYH, Su CY, Willet JDS, Esko T, Zhou S, Forgetta V, Taliun D, Richards JB. HLA allele-calling using multi-ancestry whole-exome sequencing from the UK Biobank identifies 129 novel associations in 11 autoimmune diseases. *Commun Biol.* 2023 11 03; 6(1):1113. PMID: 37923823
  11. Baron C, Cherkaoui S, Therrien-Laperriere S, Ilboudo Y, Poujol R, Mehanna P, Garrett ME, Telen MJ, Ashley-Koch AE, Bartolucci P, Rioux JD, Lettre G, Rosiers CD, Ruiz M, Hussin JG. Gene-metabolite annotation with shortest reactional distance enhances metabolite genome-wide association studies results. *iScience.* 2023 Dec 15; 26(12):108473. PMID: 38077122

12. Ilboudo Y, Yoshiji S, Lu T, Butler-Laporte G, Zhou S, Richards JB. Vitamin D, Cognition, and Alzheimer's Disease: Observational and Two-Sample Mendelian Randomization Studies. *J Alzheimers Dis*. 2024; 99(4):1243-1260. PMID: 38820015
13. Eriksson M, Lipcsey M, Ilboudo Y, Yoshiji S, Richards B, Hultström M. Uromodulin in sepsis and severe pneumonia: a two-sample Mendelian randomization study. *Physiol Genomics*. 2024 May 01; 56(5):409-416. PMID: 38369967
14. Lu T, Chen Y, Yoshiji S, Ilboudo Y, Forgetta V, Zhou S, Greenwood CMT. Circulating Metabolite Abundances Associated With Risks of Bipolar Disorder, Schizophrenia, and Depression: A Mendelian Randomization Study. *Biol Psychiatry*. 2024 Nov 15; 96(10):782-791. PMID: 38705554
15. Chen Y, Butler-Laporte G, Liang KYH, Ilboudo Y, Yasmeen S, Sasako T, Langenberg C, Greenwood CMT, Richards JB. The performance of AlphaMissense to identify genes influencing disease. *HGG Adv*. 2024 Oct 10; 5(4):100344. PMID: 39180217
16. Sasako T, Ilboudo Y, Liang KYH, Chen Y, Yoshiji S, Richards JB. The Influence of Trinucleotide Repeats in the Androgen Receptor Gene on Androgen-related Traits and Diseases. *J Clin Endocrinol Metab*. 2024 Nov 18; 109(12):3234-3244. PMID: 38701087
17. Yoshiji S, Lu T, Butler-Laporte G, Carrasco-Zanini-Sanchez J, Su CY, Chen Y, Liang K, Willett JDS, Wang S, Adra D, Ilboudo Y, Sasako T, Koyama S, Nakao T, Forgetta V, Farjoun Y, Zeberg H, Zhou S, Marks-Hultström M, Machiela MJ, Kaalia R, Dashti H, Claussnitzer M, Flannick J, Wareham NJ, Mooser V, Timpson NJ, Langenberg C, Richards JB. Integrative proteogenomic analysis identifies COL6A3-derived endotrophin as a mediator of the effect of obesity on coronary artery disease. *Nat Genet*. 2025 Feb; 57(2):345-357. PMID: 39856218
18. Tan D, Chen Y, Ilboudo Y, Liang KYH, Butler-Laporte G, Richards JB. Caution when using network partners for target identification in drug discovery. *HGG Adv*. 2025 Apr 10; 6(2):100409. PMID: 39861949
19. Ilboudo Y, Brosseau N, Lo KS, Belhaj H, Moutereau S, Marshall K, Reid M, Kutlar A, Ashley-Koch AE, Telen MJ, Joly P, Galactéros F, Bartolucci P, Lettre G. A replication study of novel fetal hemoglobin-associated genetic variants in sickle cell disease-only cohorts. *Hum Mol Genet*. 2025 Apr 06; 34(8):699-710. PMID: 39886999

#### **Thesis:**

1. Multi-omics approaches to sickle cell disease heterogeneity.

#### **Manuscripts Submitted to Preprint Servers**

1. M Muti, Y Ilboudo. Proteomic signatures of BMI generalize across ancestries and reveal cardiometabolic heterogeneity beyond measured BMI. *MedRxiv*

#### **Abstracts, Poster Presentations, and Exhibits Presented at Professional Meetings:**

- 1.

##### **Mendelian randomization Conference**

Bristol, UK

(Poster presentation)

Vitamin D, Cognition, and Alzheimer's Disease: Observational and Two-Sample Mendelian Randomization Studies

2. **Statistical, Computational, Translational, and Ethical Challenges in Biobank Data Analysis 2024**

Banff International Research Station, CA

•Invited oral presentation: Vitamin D, Cognition, and Alzheimer's Disease:

Observational and Two-Sample Mendelian Randomization Studies

3. **American Society of Human Genetics Meeting**

Boston, MA

(Oral presentation)

Proteogenomic analysis of BMI in ~200,000 continental Africans and admixed Africans identifies 28 loci and enhances cross-ancestry incident obesity prediction using proteomic scores

4. **COPDGene/SPIROMICS Workshop**

Arlington, VA

(Oral presentation)

Molecular mediators linking BMI to PRISM (preserved ratio impaired spirometry)

5. **5th Annual Harvard Black Postdoctoral Association**

Boston, MA

(Oral presentation)

Proteogenomic analysis of BMI in ~200,000 continental Africans and admixed African identifies 28 loci

6. **DSI Africa** - Plenary session

Mombasa, Kenya

(Oral presentation)

Title: Can polygenic risk scores developed elsewhere actually work for African populations?  
Using data science, genetics & machine learning

**Narrative Report**