

# Guy Oldrieve, PhD

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## Summary

Bioinformatician (6+ years) specialising in data-driven approaches to disease research and discovery. Skilled in developing, optimising, and validating scalable multi-omic pipelines. Currently focused on implementing nf-test-based CI for ISO-certified Nextflow pipelines, ensuring reproducibility, reliability, and compliance.

Python

R

bash

Nextflow

nf-test

GitHub

AWS/HPC

GH Actions

## EXPERIENCE

### Bioinformatician — Animal and Plant Health Agency

2025-Present

- Reviewed and streamlined in-house pipelines for sequencing QC and phylogenetic analysis of bovine TB isolates
  - o Developed and improved nf-test CI for ISO-17025 certified Nextflow pipelines
  - o Created btb-sub, a Nextflow pipeline which automates the submission of sequencing data to ENA

### Postdoctoral Research Associate — The University of Edinburgh

2023-2025

- Created vsgseq2, a Nextflow pipeline for analysing population-level antigenic variation in *T. brucei*<sup>1</sup>
  - o Integrated nf-test unit/integration testing and Docker for reproducible distribution
  - o Applied vsgseq2 to hundreds of chronic bovine infection samples
  - o Generated high-quality genome assemblies from PacBio, ONT, and Hi-C data to understand mechanisms of antigenic variation
- Developed a MinION-based diagnostic for real-time outbreak detection of *T. brucei*
  - o Built a Python based machine learning app for phenotype prediction and outbreak risk
  - o Performed amplicon generation and ONT sequencing
  - o Supervised and taught two students in both wet lab and bioinformatics
- Delivered HPC training and managed group environments
- Co-authored the first profile of the *T. brucei* cell cycle with single-cell RNAseq<sup>4</sup>
- Serve on the British Society for Parasitology council, promoting adoption of new technologies
- Reviewer: Trends in Parasitology, PLOS NTD, Frontiers in Cellular and Infection Microbiology and Parasitology Research

### PhD in Hosts, Pathogens, and Global Health — The University of Edinburgh

2018-2023

- Built a Snakemake pipeline to investigate life cycle simplification in *T. brucei*<sup>3,6</sup>
  - o Identified mutations disrupting quorum sensing via analysis of genomic and transcriptomic data
  - o Validated predictions through CRISPR/Cas9 genetic manipulation
- Sequenced and assembled a parasite genome remotely using MinION during pandemic restrictions<sup>5</sup>
- Presented research at international conferences to scientific and general audiences
- Supervised a student in genome assembly and comparative genomics, resulting in a co-authored publication

## MSc in Hosts, Pathogens and Global Health — The University of Edinburgh

2018-2019

- Produced high-quality bacterial genome assemblies to investigate isolate relationships<sup>2</sup>
- Developed an R-based data mining pipeline to identify severe malaria biomarkers from unstructured datasets

## Research Assistant — Cardiff University

2013-2018

- Applied Python-based machine learning to filter contaminated transcriptomic data

## EDUCATION

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- PhD in Hosts, Pathogens, and Global Health at University of Edinburgh (**Ker Memorial Prize**) 2018-2023
- MSc in Hosts, Pathogens and Global Health at University of Edinburgh (**Merit**) 2018-2019
- Integrated Master's in Biology (MBiol) at Cardiff University (**First-class**) 2013-2018

## PUBLICATIONS

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1. **Oldrieve G.**, et al. (2025). vsgseq2: an updated pipeline for analysis of the diversity and abundance of population-wide *Trypanosoma brucei* VSG expression. In Prep.: Wellcome Open Research
2. Vancaester E., **Oldrieve G.**, et al. (2025) Ghosts of symbionts past: The hidden history of the dynamic association between filarial nematodes and their *Wolbachia* endosymbionts. Accepted: G3
3. **Oldrieve G.**, et al. (2024) Mechanisms of life cycle simplification in African trypanosomes. Nature Communications
4. Briggs E., Marques C., **Oldrieve G.**, et al. (2023). Profiling the *Trypanosoma brucei* cell cycle using single-cell transcriptomics. eLife
5. **Oldrieve G.**, et al. (2022). The genomic basis of host and vector specificity in non-pathogenic trypanosomatids. Biology Open
6. **Oldrieve G.**, et al. (2021). Monomorphic Trypanozoon: towards reconciling phylogeny and pathologies. Microbial Genomics

## AWARDS

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- **Ker Memorial Prize:** Best PhD thesis in infectious diseases, University of Edinburgh (2024)
- **Best poster:** Edinburgh Infectious Diseases symposium (2020)
- **Best performance:** Integrated master's in biology (2018)

## INTERESTS

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- Endurance Events: Perranporth Triathlon and Ljubljana, Loch Ness and Edinburgh (2023-Present) marathon
- Captain, Lismore RFC: Led a squad of 50+ players (2020-2023)