

# Jonathan Chan

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## EDUCATION

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### University of Oxford, Merton College

DPhil in Medical Sciences (Bioinformatics/Cardiovascular Genomics)

Oxford, United Kingdom

2022 – Present (Oct 2026)

### University of Oxford, St Hilda's College

MBiochem in Molecular and Cellular Biochemistry – 1<sup>st</sup> Class (Rank: 2<sup>nd</sup> of 97)

Oxford, United Kingdom

2018 – 2022

## HONOURS

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- Radcliffe Department of Medicine & Clarendon Fund DPhil Scholarship (~£175k), 2022
- Gibbs Prize for Proxime Accessit in Biochemistry (2<sup>nd</sup> in Cohort), 2022
- Department of Biochemistry Project Prize for Master's Research (3<sup>rd</sup> in Cohort), 2022

## RESEARCH EXPERIENCE

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### Dart Biosciences Ltd, London, United Kingdom

*Computational Biologist (Part-Time)*, Oct 2024 – Present

- Built MVP for at-scale cell-specific marker gene identification via *cellxgene*, *scanpy*, *scVI* and *cellPLM*.
- Conducted project feasibility analysis on single-cell transcriptome → surfaceome prediction via processing of CITE-seq datasets (*muon*) and benchmarking of SOTA model (*SPIDER*).
- Co-authored NSF SBIR and NIH SBIR Omnibus grant applications.

### University of Oxford Radcliffe Department of Medicine, Oxford, United Kingdom

*Doctoral Student (Prof. Hugh Watkins & Prof. Anuj Goel)*, Sep 2022 – Present

- Applying bioinformatic & ML approaches to integrate genomic, proteomic, clinical, and imaging data in large patient/population cohorts.
- Building multifactorial models for prediction of hypertrophic cardiomyopathy risk and severity.
- Applying statistical genetic and population-scale analyses to identify novel biomarkers of disease risk and progression.

### University of Oxford Ludwig Institute for Cancer Research, Oxford, United Kingdom

*Master's Student (Prof. Yang Shi)*, Sep 2021 – Jun 2022

- Performed genome-wide CRISPR-cas9 knockout screening of cancer cell lines + NGS analysis
- Discovered novel vulnerabilities with top hit *ASCL1* progressing to validation via mouse models.

## SKILLS

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### Tech

- R: *tidyverse*; *ggplot2*; *markdown*
- Python: *pandas*; *NumPy*; *seaborn*; *scikit-learn*; *scikit-survival*
- HPC: *SLURM*
- Cloud Computing: *DNAexus*; *GCP*

### Bioinformatics

- GWAS (*REGENIE*; *PLINK*; *SNPTEST*)
- Post-GWAS analyses (*LDSC*; *FINEMAP*; *coloc*)
- Polygenic risk score modelling (*PRS-CS*; *SBayesRC*)
- Rare-variant association analysis (*REGENIE*; *SAIGE-GENE+*; *VEP*)
- Mendelian randomisation (*TwoSampleMR*)
- Pipelining (*snakemake*; *Bash*; *Docker*; *WDL*)

- Single-cell transcriptomic analysis (*scanpy*, *scVI*, *cellxgene*, *DESeq2*)
- Multimodal -omic (CITE-seq) data analysis (*muon*)

### Population-Scale Data Analysis

- Data analysis in patient & population datasets (*HCMR*; *UK Biobank*; *All of Us*)
- Systematic review (*PRISMA*) and meta-analysis (*meta*)
- Survival/TTE analysis (*Kaplan-Meier*; *Cox regression*)

## PUBLICATIONS/PRESENTATIONS

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**Chan, J.H., Grace, C., Mahidi, M., Clarke, R., Ho, C., Neubauer, S., Kramer, C., Watkins, H., Goel, A.**  
*Biobank-Scale Plasma Proteomics Identifies Novel Biomarkers in Hypertrophic Cardiomyopathy*,  
 Circulation: Precision & Genomic Medicine (*Under Review*)

**Jiao, A.L., Maghrouni, A., Velazquez, A.G., Annett, A., Wen, T., Chan, J., Nguyen, S., Tayeh, B.B., Le Dily, F., Kleinman, C., di Croce, L., Shi, Y.**  
*H3K27M co-opts ASCL1 to maintain progenitor states and drive gliomagenesis*, Nature Communications  
 (*Under Review*)

**Chakraborty, A., Kobzev, E., Chan, J., de Zoysa, G.H., Sarojini, V., Piggot, T.J., Allison, J.R. (2021)**  
*Molecular Dynamics Simulation of the Interaction of Two Linear Battacin Analogues with Model Gram Positive and Gram Negative Bacterial Cell Membranes*, ACS Omega

**Prioritising modifiable risk factors and biomarkers for hypertrophic cardiomyopathy: a Mendelian randomization approach**

*American Society of Human Genetics Annual Meeting (Boston, US), Oct 2025*

**Uncovering how Sarcomeric Variants affect Disease Heterogeneity in Hypertrophic Cardiomyopathy: A Cardiac Magnetic Resonance Imaging Study in the HCM Registry**

*International Society of Heart Research XXV World Congress (Nara, Japan), May 2025*

**Integrating Rare and Common Genetics for Risk Prediction in Hypertrophic Cardiomyopathy**

*Genomics England Research Summit (London, UK), Jul 2024*

## EXTRACURRICULAR

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### Peer Review Experience

- Nature Cardiovascular Research
  - NCVR-2025-03-0348 (Statistical genetics, Mendelian randomisation), Apr 2025

### Bio x AI Hackathon – 3<sup>rd</sup> Place

*Entrepreneur First (London), Nov 2024*

- Leveraged scRNA-seq foundation model (*CellPLM*) to harmonise lung adenocarcinoma datasets and applied optimal transport to transcriptomic embeddings to model cancer evolution.

**Oxford University Biotech Society**, Oxford, United Kingdom

*President*, Jun 2023 – Jun 2024

- Managed team of 11 across all society facets e.g operations, finance, communications etc.
- Spearheaded inaugural OxBioHack hackathon in collaboration with Oxford CompSoc and OPMS.