

Sean GP Lee

Computational & Translational Cancer Research

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PROFILE

Rising junior at Cinco Ranch High School focused on translational oncology and computational biology. First author on peer-reviewed cancer research, collaborating with an associate professor at MD Anderson Cancer Center and researchers at Baylor College of Medicine. Research spans biliary tract cancer, hepatocellular carcinoma, NSCLC radiomics, multi-omic tumor-microenvironment analysis, and survival modeling. Current work maps how pSTAT3, an inflammatory-cytokine-driven signaling pathway, reshapes the tumor microenvironment across esophageal, gastric, colorectal, pancreatic, liver, and cholangiocarcinoma cancers, integrating genomic, transcriptomic, and spatial data to test whether the axis governs immune landscape, fibrotic architecture, and patient survival.

EDUCATION

Cinco Ranch High School · Katy, Texas

2024 – 2028

High School Diploma, Class of 2028 (rising junior).

- Activities: Onco Research Scholars president; Physics Club officer; Varsity Orchestra; National Honor Society.
- Science Olympiad invitational gold medal.

RESEARCH & PROFESSIONAL EXPERIENCE

Sutura Genomics, Inc. · Co-Founder & CTO

Apr 2026 – Present

Houston metro area, Texas

- Co-founded an AI platform that reconstructs torn, folded, deformed, or partially missing tissue sections for spatial-biology workflows. Accepted to Y Combinator Startup School 2026.
- Built the cross-donor evaluation pipeline and ground-truth methodology, drawing on 2.5 years of computational oncology research at MD Anderson.
- Developed a hybrid alignment system that automatically selects the best method for each dataset and outperforms individual approaches in internal benchmarks, reducing pixel-level alignment error by roughly an order of magnitude across synthetic and real tear scenarios.
- Positioned Sutura as the vendor and tissue-agnostic reconstruction layer between spatial-imaging hardware and downstream analysis, replacing manual correction or costly sample repetition where methods such as PASTE2, STalign, and GPSA fail.
- Deployed to four active research labs; built a 35-researcher waitlist from more than 60 pre-build interviews across academia, biotechnology, and pharmaceuticals.
- Shipped a live web product and interactive demo (suturagenomics.bio), a bioRxiv methodology preprint, four lab deployments, and the first paying customers.
- Guided by scientific advisor Dr. Sunyoung S. Lee, MD Anderson GI Medical Oncology faculty.
- Technical stack: Python, PyTorch, PyTorch Geometric, Scanpy, AnnData, scikit-learn, SciPy, Next.js, TypeScript, and Three.js.

UT MD Anderson Cancer Center · Research Intern

Jan 2024 – Present

Remote

- Conduct computational cancer-genomics research under a GI medical oncologist and associate professor at MD Anderson.
- Write code, build models, and analyze patient genomic data, including pSTAT3 signaling and the tumor microenvironment across six gastrointestinal cancer cohorts, with discovery and validation on public cohorts including TCGA and CPTAC.
- Work with an open MD Anderson clinical and molecular dataset that is not publicly available.

UT MD Anderson Cancer Center · Clinical Research Apprentice

Sep 2024 – Oct 2024

- Completed a one-on-one apprenticeship shadowing a GI medical oncologist and observing the translational side of the computational work.
- Traveled with the faculty mentor to the DAVANCO conference in Bermuda, an invitation-only meeting.

Onco Research Scholars · Founder & President

Jan 2026 – Present

- Founded and lead a student research-mentorship organization and international research incubator, coordinating student oncology cohorts across three continents and ten states.
- Mentor students through the full research process, from developing ideas to cold-emailing faculty. More than 25 members have secured research positions at Stanford, Yale, MIT, MD Anderson, Google, and UT.

ThroughWay · Co-Founder & CFO

Apr 2026 – Present

Katy, Texas (Hybrid)

- Co-founded a nonprofit reducing financial toxicity and improving insurance access for cancer patients, mentored by the MD Anderson Financial Clearance Center.

Cholangiocarcinoma Foundation · Researcher

Jan 2026 – Present

Remote, seasonal. Statistical and survival modeling.

European Society for Medical Oncology (ESMO) · Researcher

Apr 2026 – Present

Remote, seasonal.

PUBLICATIONS & RESEARCH OUTPUT

Tumor Phospho-STAT3 Marks a Shared Angiogenic-Fibrotic, Immune-Replete Microenvironment Across Gastrointestinal Cancers: A Multi-Omic Analysis of 1,274 Tumors

First-author manuscript · under review at *Molecular Oncology* · 2026

A 6-Gene pSTAT3 Transcriptomic Score Identifies an Immunosuppressive, Chemotherapy-Resistant Phenotype and Predicts Poor Survival in Biliary Tract Cancer

The Oncologist, Oxford University Press · June 2026

First author (Sean GP Lee et al.).

Napabucasin Across Four Registrational Phase 3 Trials in Advanced Gastrointestinal Cancers: A Complete-Enumeration Meta-Analysis Bounding the Survival Effect, and a Tested Non-Replication of the pSTAT3 Biomarker Signal

OSF Registries · preregistered, under review at *Clinical Colorectal Cancer* · July 2026

Solo-authored systematic review and meta-analysis of the complete registrational Phase 3 program (4 trials; 3,383 patients).

Tissue Tearing Degrades Optimal-Transport Registration of Spatial Transcriptomics Beyond Displacement Magnitude: A Multiseed Deformation Benchmark and a Supervised Graph Cross-Attention Proof-of-Concept

bioRxiv · preprint · July 2026

A Pan-Cancer Identifiability Atlas for Compartment-Resolved Pathway Attribution from Bulk Transcriptomes

Open Science Framework (OSF) · 2026

When Can a Pathway Program Be Attributed to a Tumour Compartment from Bulk RNA? An Identifiability Audit Across Immune-Checkpoint Cohorts

Open Science Framework (OSF) · 2026

Competing Risks Are Ignored in Most SEER Cancer-Specific-Mortality Nomograms: A Systematic Audit with Real-Patient Reanalysis and a Validated Correction Pipeline

Open Science Framework (OSF) · 2026

Most Published Immunotherapy-Response Gene Signatures Do Not Outperform Random Gene Sets, and Collapse onto a Single Tumor-Inflammation Axis

Open Science Framework (OSF) · 2026

HONORS, PRESENTATIONS & CONFERENCES

Youngest presenter, and only high schooler, in the documented history of the Cholangiocarcinoma Foundation Annual Conference 2026

First-author poster, MD Anderson travel grant. Presented pSTAT3 transcriptomic-scoring research to an international panel of gastrointestinal oncology experts.

Poster Presenter, ESMO Asia Congress, Singapore Dec 2026 (upcoming)

Returning Presenter, Cholangiocarcinoma Foundation Annual Conference, Utah Mar 2027 (upcoming)

Accepted to Y Combinator Startup School 2026 (out of 30,000 applicants) Jul 2026

Attendee, DAVANCO Conference, Bermuda 2025

Invitation-only international oncology symposium.

SELECTED PROJECTS & VENTURES

eBay Reselling Business · Independent

Scaled an independent reselling business to more than \$35,000 in net profit.

Photography · Independent business

Served more than 25 clients across proms, graduations, professional headshots, portraits, and landscapes. Portfolio: @sean.photodiary_.

VOLUNTEER & COMMUNITY LEADERSHIP

Texas Children's Hospital · Summer Volunteer Jun 2025 – Jul 2025

Selected through a competitive process (13 of more than 300 applicants) and served as a lead speaker. Completed 120 volunteer hours assisting nurses and staff.

Cholangiocarcinoma Foundation · Volunteer May 2026 – Jun 2026

Set up conference sessions and special events and assembled 500 care kits distributed worldwide.

KCPCH Korean School · Teaching Assistant Aug 2024 – Present

Completed 150 volunteer hours, contributing about four hours per week.

Music for Medicine · Musician May 2025 – Present

Performs live music for elderly residents at care homes and assisted-living facilities.

Designed SDG-themed shoes supporting children's health rights in South Sudan.

SKILLS

Research: Computational cancer genomics, translational oncology, multi-omic analysis, spatial transcriptomics, transcriptomics, genomics, tumor-microenvironment analysis, survival and statistical modeling, systematic review and meta-analysis, clinical and molecular data analysis, radiomics, TCGA data analysis, scientific writing and presentation, research mentorship.

Technical: Python, PyTorch, PyTorch Geometric, Scanpy, AnnData, scikit-learn, SciPy, Next.js, TypeScript, Three.js, Git and GitHub, Adobe Lightroom.