

Kyle C. Smith, Ph.D.

Cambridge, MA

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Executive Summary

Accomplished R&D executive who has twice translated novel platforms from concept to commercial product. As a founding team member of MicroMedicine, architected the core technology that secured \$38M in funding milestones and drove the company to its first commercial launch. This deep medtech experience is complemented by hands-on success building a profitable service-based venture from the ground up. A proven leader who builds high-performing teams and forges the technical and strategic partnerships essential for commercial success. Seeking a senior leadership role to scale the next generation of impactful life science platforms.

Core Competencies

- R&D Strategy & Execution
- Technology Commercialization
- Device & System Development
- Manufacturing & Tech Transfer
- Fundraising & Investor Relations
- IP Strategy & Portfolio Management
- Quality Systems & Design Controls
- Financial Modeling & Budgeting
- Team Leadership & Mentoring
- Strategic Partnerships
- Venture Building
- Data Science & Analytics

Professional Experience

BendBio | Cambridge, MA

2021 – Current

Chief Technology Officer & Co-Founder

- Co-founded BendBio to capitalize on the cell therapy manufacturing market needs, setting technical vision and IP strategy for a novel, ultra-high-throughput microfluidics platform.
- Pivoted the company from a capital-intensive instrument model to a capital-efficient consumables model in direct response to VC market shifts and learnings from prior ventures, preserving the company's viability.
- Engineered a de-risked business model that secured the company's first revenues, achieved operational self-sufficiency, and preserved 100% founder equity by focusing on core technical strengths.
- Led the development of a new class of microfluidic devices, specifically architected for high performance and seamless, low-cost integration into commercial partners' existing instrumentation platforms.
- Secured and managed strategic R&D partnerships, serving as primary technical lead for all external collaborations and validation efforts that generated foundational revenue.

MicroMedicine | Waltham, MA

2015 – 2020

Sr. Director, R&D (2020) | Director, R&D (2015 – 2019)

- Led the spin-out of core technology from MGH as a founding team member and first employee, defining the initial technical strategy and building the technical foundation for product commercialization.
- Drove the R&D execution that secured \$38M in milestone-based funding, culminating in the successful commercial launch of the Class I Sorterra™ cell processing platform (disposables & instrumentation).
- Built the R&D organization from the ground up as a member of the Leadership Team, managing the annual R&D budget, recruiting a 12-person team, and establishing all lab infrastructure and operational processes.
- Spearheaded the technology roadmap and application strategy, demonstrating feasibility across research, diagnostic, and therapeutic areas and leading technical partnerships with pharma and life science leaders.
- Championed technology across the business, partnering with Commercial on product roadmap, Clinical/Regulatory/Quality on FDA submissions, and CEO on fundraising and IP strategy (7 new patents).

Massachusetts General Hospital | Boston, MA

2011 – 2015

Principal Scientist (2014 – 2015) | Senior Research Scientist (2011 – 2014)

- Invented the foundational IP that launched several spinouts, developing ultra-high-throughput microfluidic technologies for cell sorting, concentration, staining, and imaging with applications across a range of research, diagnostic, and therapeutic applications.
- Served as a key inventor and contributor in a \$35M partnership with Johnson & Johnson, creating high-sensitivity magnetic sorting devices for the isolation of circulating tumor cells (CTCs) from blood.

- Led the development of complete, automated research platforms, designing the novel microfluidic devices and the fluidic control instrumentation, while managing the team responsible for fabrication and testing.
- Pioneered a data-driven R&D methodology, creating algorithmic CAD tools to rapidly design and screen dozens of device variants and directing the tech transfer to an injection molding manufacturing process.

Ventures & Advisory Roles

Leva Scientific | Cambridge, MA

2024 – Current

Principal & Founder

- Provide independent strategic advice for medtech and life science ventures, focusing on R&D strategy, technology de-risking, and technical due diligence.

Bold Psych | Cambridge, MA

2021 – Current

Strategic Advisor & Co-Founder

- Co-founded and scaled a psychotherapy practice to 10 clinicians by architecting the business strategy, financial model, and operational systems.
- Developed a custom backend data analytics system to track key business metrics and generate automated performance dashboards.

Publications and Patents

- 27 peer-reviewed papers in journals including *Science Translational Medicine*.
- 18 issued US utility patents and numerous international patents on high-throughput methods and devices for magnetic and flow-based microfluidic cell sorting, concentration, and filtration.
- 20 peer-reviewed posters and proceedings at major industry and scientific conferences.

Technical Leadership & Domain Expertise

- **Leadership & Strategy:** Recruiting and directing high-performing, multidisciplinary R&D teams; fostering a culture of scientific rigor and commercial focus while setting technical vision and managing annual budgets.
- **Data-Driven R&D:** Championing data-driven R&D using predictive modeling (CFD, FEA) and advanced data analysis (Python, R, DoE) to accelerate development cycles and de-risk technical decisions.
- **System & Device Development:** Overseeing development of life science instrumentation and microfluidic devices, from algorithmic CAD and prototyping to successful tech transfer for scalable manufacturing.
- **Validation & Process Engineering:** Leading biological validation and process development; overseeing creation of analytical methods (flow cytometry, immunoassays) for robust, user-independent workflows.

Academic Research & Education

Massachusetts Institute of Technology | Cambridge, MA

Ph.D. in Biomedical and Electrical Engineering (Division of Health Sciences & Technology)

S.M. in Electrical Engineering and Computer Science

NSF Graduate Research Fellow & Whitaker Foundation Graduate Research Fellow

- Architected novel, deterministic, multiscale models of cell and tissue electroporation, linking continuum models of membrane-level pore dynamics with cell-level molecular transport. This platform became the foundation for all subsequent modeling research in the Weaver Research Group.
- Pioneered the use of high-throughput *in silico* experiments to explore advanced therapeutic strategies, including the use of ultra-short, high-intensity pulses to induce targeted apoptosis for cancer therapy.

Duke University | Durham, NC

B.S.E. with Distinction in Biomedical Engineering

Pratt Engineering Undergraduate Research Fellow

- Published first-author research in leading journals and received the Helmholtz Award (best undergraduate research project in the department) for developing computational models to elucidate the dynamics of membrane pore creation and resealing.