# Andrew R. Dunn, Ph.D.

## ABOUT

Engineer, scientist, and company builder who likes starting with very little and building what is needed to answer the question, be it assays, labs, teams, or companies.

Grew up working in a family industrial manufacturing business in New Hampshire, where broken equipment was often rebuilt with whatever was on hand. That mindset still shapes my approach to science: when a problem gets called too hard, or too early to try, I design the experiment and run it. Some of those experiments fail. Each one teaches the next iteration.

Formally trained in DNA repair biophysics (Ph.D. in Cell and Molecular Biology from The University of Vermont). In industry since 2012, first in molecular diagnostics and then in gene and cell therapy, including eight years at CRISPR Therapeutics working on CASGEVY, the first FDA-approved CRISPR therapy.

## STARTED FROM SCRATCH

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| **2025** | Co-founded an oncology therapeutics company. Set up the lab, the preclinical program, and financing. |
| **2022** | Proposed and started the radiomics function at CRISPR Therapeutics. |
| **2017** | Built the amp-seq assay for on-target editing in exa-cel. It is still a primary endpoint in CASGEVY clinical trials. |
| **2015** | Took a microbiome profiling product from idea to validated assay at Veritas Genetics. |
| **2014** | Relaunched a shuttered bladder cancer test (CertNDx) starting from 11 banker boxes and built the CLIA to run it. |
| **2006** | Built single-molecule imaging assays to observe individual DNA repair enzymes search for damaged DNA bases. |

## AREAS OF WORK

**Company building:** founding team, scientific strategy, financing, lab and operations setup.

**Gene editing and delivery:** CRISPR/Cas9 analytics, LNP and VLP in vivo delivery, on- and off-target editing assays.

**Pharmacometrics:** self-taught. PK/PD modeling for allogeneic CAR-T cells and LNP-delivered gene editors; clinical data interpretation and regulatory writing.

**Molecular diagnostics:** assay development and CLIA validation, next-generation sequencing, bisulfite sequencing, digital PCR.

## EXPERIENCE

**Oncology Therapeutics Company (stealth)**

*CEO & Cofounder* Jul. 2025 – Present

- Co-founded the company and lead scientific strategy, preclinical execution, drug manufacturing, financing, and operations.
- Raised early-stage financing and assembled the founding team.

**CRISPR Therapeutics**

*Director* Jul. 2022 – Jul. 2025

Clinical Development

- Proposed and started the company's radiomics function. Built a framework that quantifies features in patient imaging and relates them to anti-tumor activity of allogeneic CAR-T therapy (AACR 2025).
- Built PK/PD models for lipid nanoparticles (LNPs) linking biodistribution, gene editing, and pharmacological effect. Used for translational decisions on CTX310 and CTX320.

Research

- Designed and produced virus-like particles (VLPs) for in vivo delivery of gene-editing tools, starting from public-domain VLP designs. Produced VLPs capable of editing human hematopoietic stem cells in vivo.
- Built the analytical methods for in vivo editing studies, from LNP pharmacokinetics to phenotypic and genomic readouts in mouse and non-human primate (NHP) models.

*Associate Director* Jul. 2020 – Jul. 2022

Clinical Development

- Built the pharmacometrics strategy for the immuno-oncology clinical programs, learning the discipline on the job. The team modeled how trafficking, expansion, and persistence of allogeneic CAR-T cells relate to toxicity and anti-tumor effect.

Research

- Program Leader, Hemophilia A gene correction program (CTX420). Led a cross-functional team through a non-human primate study of toxicity, efficacy, pharmacokinetics, and immunogenicity. Results informed the later gene correction programs.

*Senior Scientist* Mar. 2017 – Jul. 2020

- Invented a method to detect and quantify transgene insertion in CAR-T cells (sole inventor, patent application filed). Adopted across the immuno-oncology clinical portfolio and gene correction programs.
- CASGEVY (exagamglogene autotemcel; exa-cel, CTX001):
    - Led the on- and off-target Cas9 editing analytical strategy and assay suite, from first design through validation.
    - Designed, developed, and validated the pharmacokinetic amplicon sequencing (amp-seq) assay for on-target editing. Still in use as a primary endpoint in exa-cel clinical trials.
    - Drafted CMC sections of the IND application.

**Veritas Genetics**

*Senior Scientist* Nov. 2015 – Feb. 2017

- Built a microbiome profiling product from idea to validated assay. Scoped the project, set up a dedicated lab, and hired and trained staff.
- Wrote the IRB protocol and informed consent forms for adult and pediatric stool collection.
- Assessed new product ideas for technical feasibility and R&D scope.
- Developed and validated methods across several molecular diagnostic platforms.

**Physicians Choice Laboratory Services (PCLS)** Jul. 2014 – Nov. 2015

*Senior Scientist* Jun. 2015 – Nov. 2015

- Managed research associates covering lab operations and assay development.
- Ran analytical and clinical validation, stability studies, and controls under CLIA.
- Worked with clinicians to fit assay design to clinical need and to generate evidence for reimbursement.

- Managed outside developers building a cloud database for SOPs, inventory, and patient records, plus an automated physician-facing CertNDx report.

*Scientist* Jul. 2014 – Jun. 2015

- Relaunched CertNDx, the bladder cancer test from the closed Predictive Biosciences, starting from 11 banker boxes. Designed and set up the CLIA lab near Charlotte, NC, and rebuilt the test with new biomarkers and methods (higher sensitivity and specificity).
- Lab build-out: liquid handlers, sequencers, qPCR and dPCR instruments, sample storage.

**N-of-One Therapeutics** Dec. 2013 – Jun. 2014

*Principal Scientist*

- Researched DNA mutations and matching targeted therapies using NCBI, COSMIC, cBioPortal, IGV, and ClinicalTrials.gov.
- Wrote personalized reports for cancer patients and physicians covering targeted therapies and open clinical trials.

**Predictive Biosciences** May 2012 – Jun. 2013

*Research Scientist, Applied Science*

*Company closed June 2013 after a change in molecular diagnostics reimbursement.*

- Designed next-generation bisulfite sequencing assays and analyses to measure cancer gene promoter methylation.
- Developed PCR and template isolation approaches for hard-to-amplify gene targets.

**University of Vermont** 2006 – 2012

*Doctoral Research, Cell and Molecular Biology Program*

- Thesis work focused on how DNA glycosylases find single damaged bases.
- Built a custom flow cell and single-molecule imaging methods to watch individual glycosylases search DNA (Nucleic Acids Res 2011; PNAS 2014).

**Oregon Health & Science University** 2004 – 2006

*Research Assistant II, Department of Biochemistry and Molecular Biology*

- Maintained primary and immortalized cell lines; ran high-throughput cell culture experiments.
- Built and validated recombinant adenovirus and lentivirus vectors for chromosomal alterations and for constitutive and regulated shRNA expression in human cell lines.

**Harvard Medical School / Massachusetts Institute of Technology** Summer 2003

*Research Assistant, Vascular Biology Program, Children's Hospital Boston, Dept. of Surgery*

- Studied how mechanical strain induces matrix metalloproteinase (MMP) expression in human endothelial cells.

## EDUCATION

**University of Vermont, Burlington, VT** 2006 – 2012

Ph.D., Cell and Molecular Biology. Graduate Student Senate Vice President; CMB Program Steering Committee.

**The Colorado College, Colorado Springs, CO** 2000 – 2004

B.A., Biology, concentration in molecular biology. Minor in Art, ceramics and sculpture.

## PUBLICATIONS

- **Dunn A.R.**, Nagar S.D., Kirsch D.J., Williams L.M., Weaver A.Y., Altrock P.M., Denney W.S., Cheah C.Y., Ho P.J., McGuirk J.P., Shaughnessy P., Tam C.S., & Ghobadi A. (2025) Radiomic features associated with anti-tumor activity in Non-Hodgkin lymphoma patients treated with CD19-directed allogeneic CAR T therapy. AACR Poster Presentation; Abstract 3199.
- Kalaitzidis D., Ghonime M., Chain R., Dequeant M., Jaishankar N., Settipane D., Padalia Z., Zakas L., Kuppuraju M., Tetteh P., Dequeant M., Karnik S., Massilamany C., McEwan B., Dar H., Allen M., Serwer L., Nguyen T., Butler-Gauthier M., Sripakdeevong P., Nagar S., Tang Y., Chaudhari H., Flanagan N., Huang E., Phuyal S., Koch E., **Dunn A.**, Sula E., Loaiza C., Zhang M., Thorstensen E., Terrett J. (2023) Development of CTX112, a next generation allogeneic multiplexed CRISPR-edited CAR-T cell therapy with disruptions of the TGFBR2 and Regnase-1 genes for improved manufacturing and potency. SITC Poster Presentation; Abstract 274.
- Terrett J., Kalaitzidis D., Dequeant M., Karnik S., Ghonime M., Guo C., Chain R., Heath H., Jaishankar N., Yuen R., Settipane D., Padalia Z., Zakas L., Kuppuraju M., Tetteh P., Massilamany C., McEwan B., Leary G., Dar H., Ferulo D., Allen M., Tipton K., Serwer L., Nguyen T., Butler-Gauthier M., Sripakdeevong P., Nagar S., Tang Y., Chaudhari H., Flanagan N., Huang E., Phuyal S., Koch E., **Dunn A.**, Sula E., Waldman J., Loaiza C., Zhang M., Thorstensen E., Steiger K., Schum K., Urbaez K., Benton M., Ma A., Cohen S., Weaver A., Finch C., & Morrow PK. (2023) CTX112 and CTX131: Next-generation CRISPR/Cas9-engineered allogeneic (allo) CAR T cells incorporating novel edits that increase potency and efficacy in the treatment of lymphoid and solid tumors. AACR Oral Presentation; Abstract ND02.
- Dequeant M., Sagert J., Kalaitzidis D., Yu H., Porras A., McEwan B., Padalia Z., Tetteh P., Nguyen T., **Dunn A.**, Spencer S., Lee N., Dar H., Henderson D., Karnik S., Keerthipati P., & Terrett J. (2021) CD70 knockout: A novel approach to augment CAR-T cell function. AACR Poster Presentation; Abstract 1537.
- Padalia Z., **Dunn A.**, Karagiannis K., McEwan B., Kuppuraju M., Sagert J., Karnik S., Dequeant M., Terrett J., & Kalaitzidis D. (2020) Functional and single-cell assessment of CRISPR-modified CAR-T cells from NSCLC patients and healthy donors. AACR Poster Presentation; Abstract 879.
- Padalia Z., **Dunn A.**, Karagiannis K., McEwan B., Kuppuraju M., Sagert J., Karnik S., Dequeant M., Terrett J., & Kalaitzidis D. (2019) Single-cell RNA sequencing and functional assessment of healthy donor- and cancer patient-derived T and CAR-T cells. SITC Poster Presentation; Abstract P187.
- **Dunn A.R.**, Shepard A.R., Sanchez O.E., Haag J.S., Beach J.Q., Hay K.SL., Yo J.C., Maryanski D.N., Costello K., Scarpato K., & Keller J.W. (2015) Urine-based serial monitoring of tumor biomarkers in patients with primary bladder cancer for detection of recurrent disease. *(Submitted, The Journal of Urology).*
- Nelson R., **Dunn A.**, Kathe D., Warshaw M., & Wallace S. (2014) Two glycosylase families diffusively scan DNA using a wedge residue to probe for and identify oxidatively damaged bases. *PNAS* 111(20):E2091-9.
- **Dunn A.**, Kad M., Nelson R., Warshaw M., & Wallace S. (2011) Single Qdot-labeled glycosylase molecules use a wedge amino acid to probe for lesions while scanning along DNA. *Nucleic Acids Res* 39:7487-7498.
- Stauffer D., Chang B., Huang J., **Dunn A.**, & Thayer M. (2007) p300/CREB-binding protein interacts with ATR and is required for the DNA replication checkpoint. *J Biol Chem* 282(13):9678-87.
- Shukla A., **Dunn A.**, Moses M., & Van Vliet K. (2004) Endothelial cells as mechanical transducers: enzymatic activity and network formation under cyclic strain. *Mech Chem Biosyst* 1(4):279-90.

## INVENTIONS

- **Method for Detection and Quantification of CAR-T Cells.** CRISPR Therapeutics, patent application filed 2023. Sole inventor. Assay for detecting and quantifying CAR-T cells in biological samples.

- **Target Enrichment via Negative Selection.** Physicians Choice Laboratory Services, submitted 2016. Method for enriching target DNA by depleting non-target species.

## GRANTS & AWARDS

- *Federation of European Biochemical Societies Travel Award,* FEBS Advanced Lecture Course: Trends in Genetics, Yerevan, Armenia, 2011
- *National Institute of Environmental Health Sciences T32 Training Fellowship,* 2008 – 2011
- *The Colorado College Venture Grant,* travel to NSTI Nanotechnology Conference, Boston, MA, 2004
- *HHMI Research Award,* Massachusetts Institute of Technology and Harvard Medical School, Summer 2003