

Northwestern | INVO

Innovation and New Ventures



NORTHWESTERN AT A GLANCE

RESEARCH

\$1.05 B

FY2024 research funding

#1

academic research site in
funding in Illinois

IMPACT

**“Northwestern
Inside”**

in products of Stryker, Bose,
Luminex, Millipore, Gatorade,
L’Oreal, Pfizer, . . .

\$2.2B

revenue from IP licensing

**Northwestern’s Simpson Querrey
Biomedical Research Center**



Largest biomedical academic
research building in the U.S.

NORTHWESTERN PRODUCTS IN THE MARKET

Teepu Siddique, MD
Feinberg School of Medicine
Department of Neurology

Sold by
Schering-Plough
Genentech
AbbVie
120+ LICENSES
1994
Market Entry



Superoxide Dismutase (SOD) Transgenic Mice

Mutations of human Cu,Zn superoxide dismutase (SOD) are found in about 20% of patients with familial amyotrophic lateral sclerosis (ALS). Expression of high levels of human SOD containing a substitution of glycine to alanine at position 93--a change that has little effect on enzyme activity--caused motor neuron disease in transgenic mice. The mice become paralyzed in one or more limbs as a result of motor neuron loss from the spinal cord and died by 5 to 6 months of age. The results show that dominant, gain-of-function mutations in SOD contribute to the pathogenesis of familial ALS.

Richard Silverman, PhD
Weinberg School of Arts & Sciences
Department of Chemistry

Sold by
Pfizer
2005
Market Entry



Lyrica® (Pregabalin)

Pregabalin is an FDA-approved anti-convulsant and anxiolytic medication to treat epilepsy, neuropathic pain, fibromyalgia, restless leg syndrome and generalized anxiety disorder. Effectively shaped for transportation to the brain, it acts by inhibiting certain voltage-dependent calcium channels. It is associated with a dose-dependent increase in L-glutamic acid decarboxylase (GAD), an enzyme that synthesizes the inhibitory neurotransmitter GABA, resulting in an indirect but concomitant increase in GABA expression in the brain.

Chad Mirkin, PhD
Weinberg School of Arts & Sciences
Department of Chemistry

Sold by
Luminex
2007
Market Entry



VERIGENE® System

The VERIGENE® System rapidly and accurately detects infectious pathogens and their associated drug resistance markers—without relying on time-consuming culture methods. Its ease of use and automation-friendly workflows make it a valuable system for use in both hospital-based and reference laboratories. Tests run on the VERIGENE platform are designed to target infections in the bloodstream, respiratory tract, and gastrointestinal tract.

Nanosphere

Michael Peshkin, MS, PhD
McCormick School of Engineering
Department of Mechanical Engineering

Sold by
stryker
2017
Market Entry



Mako SmartRobotics

Mako SmartRobotics combines 3 components (3D CT-based planning, AccuStop haptic technology, and insightful data analytics) into one platform that has shown better outcomes for total knee, total hip, and partial knee patients.

MAKO SURGICAL CORP

Michael Abecassis, MD, MBA
Feinberg School of Medicine
Department of Transplant Surgery

Sold by
eurofins
2019
Market Entry



TruGraf® and OmniGraf™

TruGraf® Kidney and TruGraf® Liver are blood-based tests that offer biomarker guidance to aid physicians in minimizing both the immunosuppression and the risk of overt graft injury due to rejection in transplant recipients. OmniGraf™ Kidney combines the TruGraf® Kidney with Viracor TRAC® donor-derived cell-free DNA assays for a more comprehensive view of both subclinical acute rejection and clinical acute rejection.

TRANSPLANT GENOMICS

John Rogers, SM, PhD
McCormick School of Engineering
Department of Materials Science

Sold by
GATORADE
2021
Market Entry



Gx Sweat Patch

The Gx Sweat Patch is a first-of-its-kind personalized performance tracking sweat patch. It is a skin-like, wearable patch that pairs with an easy-to-use software app to provide real time and personalized recommendations for athletes to optimally hydrate and refuel after exercise.

EPICORE BIOSYSTEMS

Bryan Pardo, MS, PhD
McCormick School of Engineering
Department of Computer Science

Andrew Sabin, PhD
School of Communications
Department of Communication Sciences & Disorders

Sold by
BOSE
2021
Market Entry



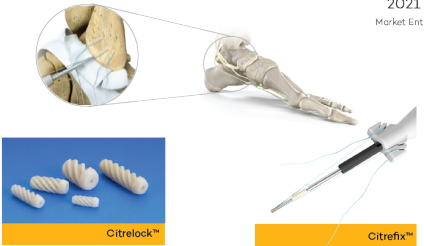
Bose SoundControl™ Hearing Aids

Bose Control™ Hearing Aids pair with the Bose Hear app, the first self-tuning mobile app that's clinically proven to provide audiologist-quality customization with perceived mild to moderate hearing loss. This product offers a direct-to-consumer hearing aid and revolutionizes how hearing loss patients treat their conditions.

EarMachine

Guillermo Ameer, DSc
McCormick School of Engineering
Department of Biomedical Engineering

Sold by
stryker
2021
Market Entry



Citirelock™ Tendon Fixation Device System & Citirefix™ Suture Anchor System

The Citirelock™ Tendon Fixation Device System features a unique tendon thread consisting of Citiregen™, a resorbable material designed to mimic the chemistry and structure of native bone. Citirefix™ is a suture anchor system for foot and ankle surgical procedures.

VesselTek BioMedical LLC

STARTUP HIGHLIGHTS

METRICS

>90

active Northwestern
startups

>\$3B

raised in last 10 years

SOME OF CHICAGO'S TOP FUNDRAISERS



\$85M Series B
(2021)



\$33M Series B
(2022)



\$30M Series A/B
(2022)



Acquired \$140M
(2022)



\$65M Series B
(2023)

WHAT IS INVO?

MISSION

The **Innovation and New Ventures Office (INVO)** catalyzes the translation of Northwestern innovations to benefit the public and to promote economic growth.

Strengthen Northwestern's identity as a leading

- Source of impactful innovations and products that improve lives
- Magnet for entrepreneurial talent

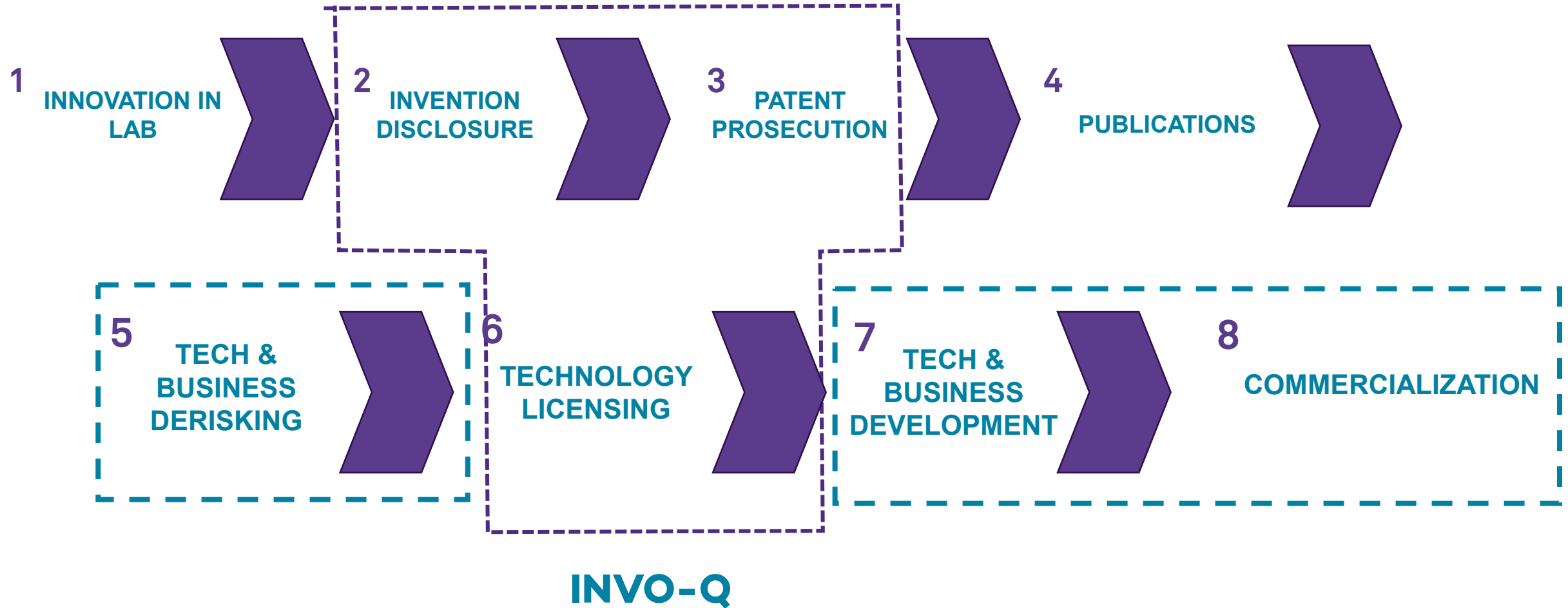
INVO WITHIN NORTHWESTERN

- Manage and translate **intellectual property** for the entire University via **Tech Transfer**
- Support **The Garage** (hub for student entrepreneurship)
- Launch and operate the **Querrey InQbation Lab** (hub for research-based entrepreneurship)
- Closely collaborate with **Kellogg**, **Feinberg School of Medicine**, **McCormick School of Engineering**, and **Northwestern Medicine** to broadly disseminate our resources and programming to weave innovation and entrepreneurship throughout the University.

The end game is to create a vibrant, self-sustaining innovation ecosystem grounded by industry partnerships, investor/venture relationships, multiple generations of entrepreneurs, and a virtuous cycle of startups.

INNOVATION TO COMMERCIALIZATION

INVO-TTO



QUERREY INQBATION LAB

HUB FOR RESEARCH-BASED ENTREPRENEURSHIP – SPACE & PROGRAMMING

MISSION

The InQbation Lab enables near-term opportunities and increases the pipeline of startup companies, serving as home for Northwestern's highly entrepreneurial faculty & researchers.

SPACE & PROGRAMMING

The InQbation Lab offers both **PHYSICAL SPACE** for startups (private and shared labs, foundries, conference rooms, classrooms, and collaborative workspaces) and **PROGRAMS** related to different phases of the commercialization process, both pre- and post-startup.

QUERREY INQBATION LAB

HUB FOR RESEARCH-BASED ENTREPRENEURSHIP

CRITICAL FUNDING

\$3M + \$3M

2021 grant from DCEO,
matched by University,
for wet lab renovations

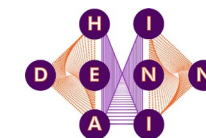
\$50M

appropriated by
Illinois General Assembly
for further renovations

\$25M

2022 gift from Kimberly Querrey, to
advance I&E **programming**

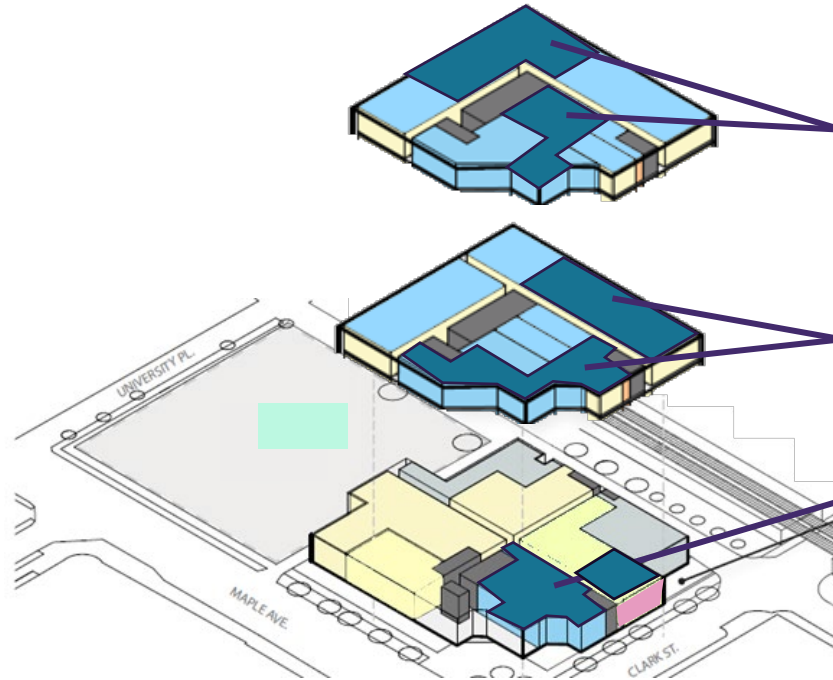
STARTUPS



QUERREY INQBATION LAB



**1801 Maple Ave
Evanston**



6th FI Startup Labs & Offices

Completed June 2023

5th FI Startup Labs & Offices

Completed Nov/Dec 2022

Collaborative Space

Completed Sept 2022

TOTAL 15,000 sq ft

Northwestern

QUERREY INQBATION LAB

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Q COMMUNITY SPACE



QUERREY INQBATION LAB

	TECH-SPECIFIC DEVELOPMENT	TECH LAUNCH	STARTUP
ADVISORS	• Q MENTOR NETWORK • Q-EXECUTIVES-IN-RESIDENCE • Q INDUSTRY/INVESTOR ADVISORY BOARDS		
PERSONNEL	• INVO PRACTICUM INTERNS • KQ ENTREP RESIDENCIES	• Q ENTREPRENEURIAL FELLOWS • KQ SUMMER ENTREP RESIDENCIES • VENTURE STUDIOS • FARLEY-Q ENTREP SCIENTIST BOOTCAMP-PhDs, Postdocs	• Q SUMMER SCHOLARS-Undergrads • KELLOGG-MATCHED INTERNS
COACHING	• INVOFORWARD • Therapeutics • Health IT	• Q FOUNDER • EQUALIZE STARTUPS • SCIENCE2STARTUP • NSF/NIH I-CORPS	• SBIR SPRINTS • CEO ROUNDTABLES • PITCH FEEDBACK FORUMS
SEMINARS	• Q INDUSTRY/INVESTOR KOLS • Q TOPICAL SERIES (Abbott, etc.)	• Q FOUNDER SERIES (Innovations in Industry, Nuts & Bolts of Finance, Legal, Space, etc.)	
FUNDING	• NM-Q MED DEVICE STUDIO	• TRIENENS-Q FUND • RYAN ACCELERATION FUND • EIR BRIDGE FUND • CBC AND CBC-HITES	• Q STARTUP TOOLKIT • CORE REIMBURSEMENT • Q SBIR CONSULTANT • N.XT GAP FUND • INVESTOR INTRODUCTIONS
SHOWCASE		• JPM (San Fran) • SYN BIO 2.0 (Evanston) • BIOCAPITAL SUMMIT (Chicago)	
SPACE			• DISCOUNTED Q LAB SPACE • SHARED LAB

MENTORS AND ADVISOR NETWORK

Q MENTOR NETWORK

INVESTORS



Alex Andrianopoulos
Chief R&D Officer / Chief
Investment Officer
Kairos Ventures



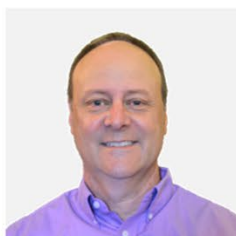
Katie Arnold, KSM '02
Founder & CEO
SPRIG



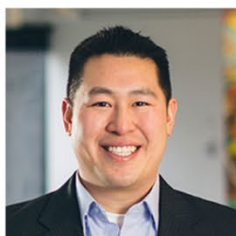
Jim Audia
Founding Scientist, EVP Drug
Discovery & Early Development
Flare Therapeutics



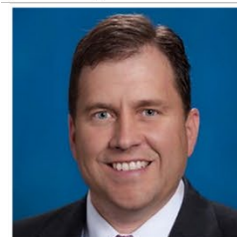
Aleks Baranczak
Associate Director, Alliances and
Program Management
Caliber at Scripps Research



Phil Carter
Invention Manger, INVO
Northwestern University



Julian Cheng, McC MEM '15
Founder & Managing Partner
Gen 1 Capital



Evan Norton, KSM '02
Founder & Managing Partner
SPRIG Equity



Tyler Panian
Principal, Co-Founder
Ontogen Medtech



Kris Parmelee
President
Parmelee Consulting

CONSULTANTS



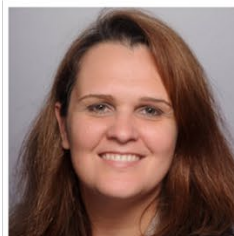
David Dorsey
Partner
11.2 Capital



Geoffrey Duyk
Managing Partner
Circularis Partners



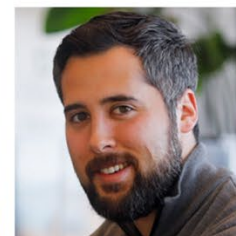
Laura Eichorn
CFO
Imago Biosciences



Dimitra Georganopoulou
General Partner
Qral Ventures



Darren Green
Professor of Entrepreneurship,
Venture Capital and Practice
Northwestern University



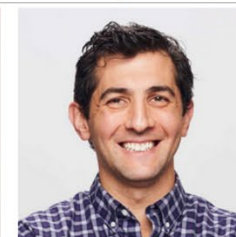
Ben Hernandez, McC '06, KSM '13,
PSL '13
CEO
NuMat Technologies



Israel Raz
Partner
Extera Partners

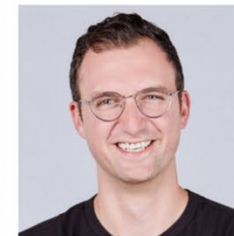


Eric Schiffhauer
Associate Director, Academic
Outreach
Deerfield Management

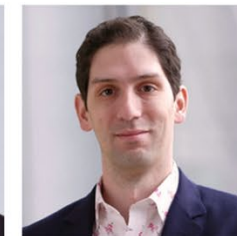


Manny Stockman
Partner
Osage University Partners

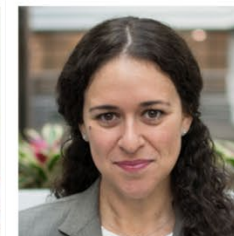
SERIAL ENTREPRENEURS



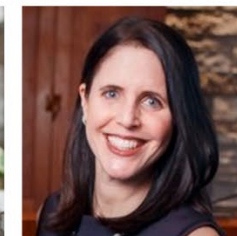
Mert Iseri, McC '11
CEO
Minicorn



Jamie Kasuboski
Vice President
OMX Ventures



Michelle Levine
Senior Associate
Solasta Ventures



Erin McQuade
VP, Legal
Levo Therapeutics

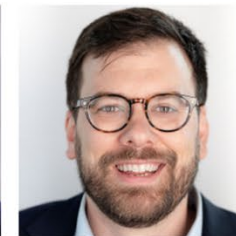


Josh Vose
CEO
SIA



Ketan Yerneni, FSM '21
Principal
KdT Ventures

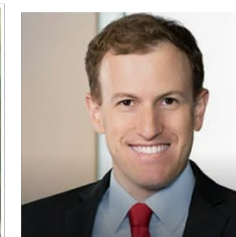
INDUSTRY EXPERTS



Steve Lehmann
Principal
Portal Innovations



Mitra Miri
Principal
Osage University Partners



Adam Falkof
Partner
Quarles & Brady

Q EXECUTIVES-IN-RESIDENCE

FALL



Sustainability

Ananth Naman
Consultant
Former VP & CTO,
Cabot Microelectronics

WINTER



Therapeutics

Edwin Moore
Principal Consultant
Biophia Consulting



Medical Devices

Micah Litow, KSM '11
Consultant
Former CEO
Kalderos

SPRING



Medical Devices

Andy Dunham
CEO, Hemanext
Former VP of R&D
Baxter



Medical Devices

Atif Yardimci
Director of Combination &
Medical Device Products
Abbvie



Robotics

Tom Wagner
CEO, Berkshire Grey
Former CTO, iRobot

SEMINARS



NETWORKING



1:1 CONSULTING



SHARED CONTACTS



INVESTOR VISITS



SUSV



KdT Ventures



Qral
Ventures

bridgebio



ROADRUNNER
VENTURE STUDIOS



Curie.Bio

DEERFIELD®
Advancing Healthcare®

RACAPITAL

general inception.



TECHNOLOGY AND BUSINESS DEVELOPMENT

PRE-VENTURE FUNDING

Ryan Translational Fund (\$35M)

- Awards twice/year; \$4M per award cycle
- Focused in healthcare (therapeutics, devices, diagnostics, health IT)

Trienens-Q Translational Fund (\$2.7M)

- 4 Awards/year; \$450k per year
- Focused in sustainability and cleantech

FoundHer Funding (\$200k)

- 3 Fellows/year
- Focused on supporting 1st time women scientist entrepreneurs

EIR Bridge Fund (\$240k)

- 3 Awards/year; \$20k per award

Chicago Biomedical Consortium

- \$100k Accelerator Awards
- \$250k Affinity Group Awards
- \$250k Catalyst Awards
- Focused in therapeutics

CBC-HITES (Hub for Innovative Technology and Entrepreneurship in the Sciences)

- \$75k Windy City Innovation Awards (devices, diagnostics, health IT)
- \$250k Chi-Town Commercialization Award (therapeutics)

Q ENTREPRENEURIAL FELLOWSHIP

ENABLING BUDDING SCIENTISTS TO EXPLORE TECHNOLOGY COMMERCIALIZATION

1 YEAR

SALARY + BENEFITS + STIPEND

- Trains next generation of entrepreneurs
- Recent PhDs and MBAs partner with Northwestern faculty to advance innovation to commercialization
- One year program targeting launch of a startup by year's end

2023-2024 FELLOWS

Northwestern

QUERRY INQBAION LAB



MENTORSHIP



NETWORKING



INSTRUCTION



COACHING



EXECUTIVE PRESENCE



KQ ENTREPRENEURIAL RESIDENCY (KELLOGG-Q)

MAKING CONNECTIONS BETWEEN RESEARCH SCIENTISTS AND FUTURE BUSINESS LEADERS

- Embeds MBA students within NU Research Institutes & Center
- Strengthens connections between Kellogg and leading Northwestern innovators
- Enables potential next steps for entrepreneurship
- Imparts commercialization mind-set to our R&D groups

SPRING 2023

30 MBA students at Info Session
9 applications/**3** accepted



SPRING 2024

>130 MBA students at Info Session
>20 applications/**8** accepted



SUMMER 2024

3 Summer Interns | **8** Weeks
\$6.4K Q Stipend + \$7K Kellogg Stipend

Prof. Tobin Marks
Prof. John Rogers
Prof. Ted Sargent



NM-Q MEDICAL DEVICE STUDIO

MOVING FROM NAPKIN DRAWINGS TO INITIAL PROTOTYPES



- Enables **NM clinicians** to move from “napkin drawings” to initial prototypes
- Supports initial prototyping build with external firm
- Facilitates initial conversations and interest among clinicians, industry partners, investors
- Provides potential next steps through Kellogg classes, mHUB, other alternative resources
- Offers patentability assessment for IP protection, if selected and funding support for IP prosecution and negotiating licensing agreements

\$50k

to support each
prototype build

4

medical devices
funded

2023

19 Medical Device Submissions

2024

38 Medical Device Submissions

21 Business Research Fellow Applications

12 Fellows

FOUNDER FELLOWSHIP

SUPPORTING AND EXPANDING THE NETWORK FOR FIRST-TIME WOMEN SCIENTIST FOUNDERS



FELLOWSHIP HIGHLIGHTS

One-on-One Mentorship

Professional Skills Development

Pitch Presentation Development

Expanding Network – Chicago Pitch Day

Venture Capital Blitz



Additional Meetings



STARTUP SUPPORT

Q STARTUP LABS & OFFICES



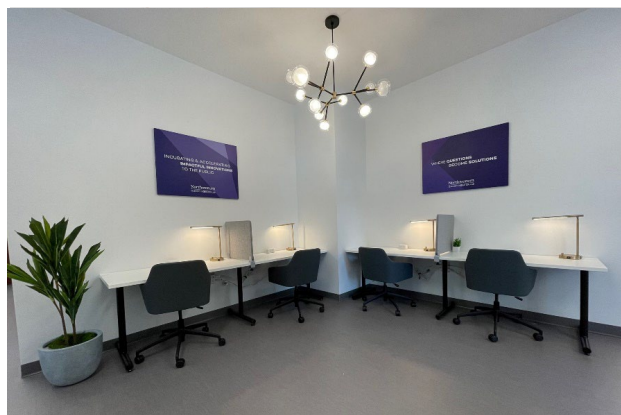
Startup Office Suite



Phone Booths



Conference Rooms



Workstations



Shared Lab & Equipment



Private Labs & Offices

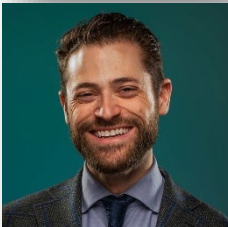
CEO ROUNDTABLES



Dennis Yang
Former CEO, Udemy



Benjamin Hernandez
CEO, Numat Tech



Alexei Mlodinow
Former CEO, SIA



Samir Mayekar
Former CEO, SiNode



Adam Goodman
*Director, Center for Leadership
Northwestern University*



INVESTOR VISITS



SUSV



KdT Ventures



Qral
Ventures

bridgebio



ROADRUNNER
VENTURE STUDIOS



Curie.Bio

DEERFIELD®
Advancing Healthcare®

RACAPITAL

general inception.



PITCH FEEDBACK & NETWORKING

8

FOUNDER PITCHERS



NylaNova



14

INVESTORS



LUMA GROUP



SOSV



Million Lives Fund



- Practice 5 min pitches in front of investors and serial entrepreneurs
- Receive 8 min honest feedback
- Extensive Written Feedback on: (1) Problem, Value Proposition and Business Model; (2) Progress and Traction; (3) Team and Operations; and (4) Pitch Materials and Delivery
- Opportunity to network with new investors

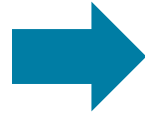
N.XT GAP FUND

DE-RISKING TECHNOLOGIES TO REACH AN INFLECTION POINT

\$10M Gap Fund

17 Investments

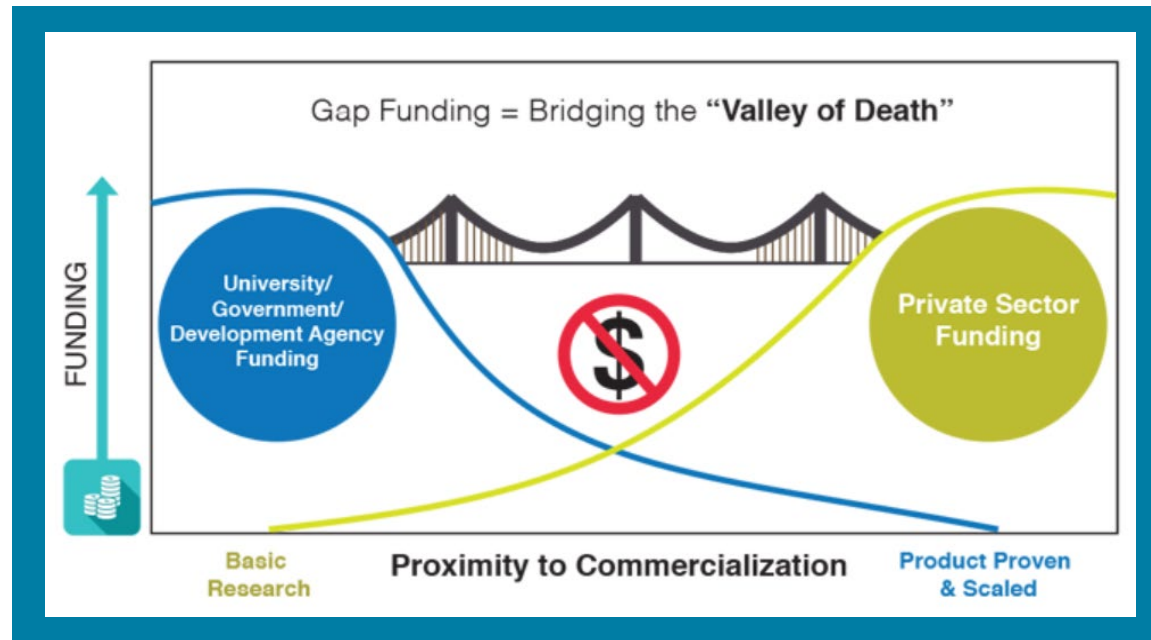
Up to \$150k investments



Startup Metrics

111 Employees | 42 Products | \$85.5M Funds Raised

(As of FY2024, in aggregate across startups)



- Annual solicitations
- N.XT investments are based on proposed technical milestones, up to **\$150K**
- About 3 investments per year
- Deals structured as **convertible notes**

OPPORTUNITIES FOR COMMUNITY

OPPORTUNITIES- PHDS & POSTDOCS

FARLEY-Q ENTREPRENEURIAL SCIENTIST 2-DAY SUMMER BOOTCAMP

Learn how to understand the value of your technology and its potential commercial impact by:

- Thinking about research with a translational lens
- Distilling and communicating technology
- Conducting customer discovery through live workshops



OPPORTUNITIES- PHDS & POSTDOCS

INVO PRACTICUM



Build skillsets for non-academic careers (IP law, TTOs, industry, consulting, policy, regulatory)by:

- Evaluating technologies for patentability, marketability and commercialization readiness
- Writing marketing materials and shop technologies for potential licensing opportunities

OPPORTUNITIES - UNDERGRADUATES



Q SUMMER SCHOLARS

A paid 8-week summer entrepreneurial internship for Northwestern undergraduates at Northwestern startups.

Startups are commercializing biotechnology, medical devices, consumer technology and next generation materials.

The internship ends with a “Demo Day” where all scholars present their summer projects to their peers and The Q community.

OPPORTUNITIES – HIGH SCHOOL STUDENTS



Q TECH TALKS

Tech Talks at The Q offer local high school students the opportunity to meet Northwestern faculty and learn about their innovative research that will impact our future



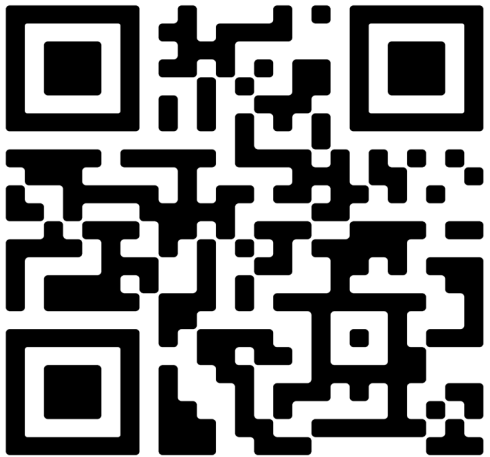
Prof. John Rogers: The Body Electric

Prof. Kevin Lynch: Robots in our Future

Prof. Larry Birnbaum: Collaborative & Interactive AI

STAY CONNECTED & LEARN MORE

Q on LinkedIn



1400+ Followers

Q Newsletter



Sent biMonthly



Questions?

INVO



www.invo.northwestern.edu

The Q



www.inqbationlab.northwestern.edu

Arjan Quist

Executive Director, Innovation Management
arjan.quist@northwestern.edu

Sonia Kim

Executive Director, InQbation Lab
sonia.kim@northwestern.edu