Acorn Innovation Fund Report (FY24 Cohort)

The Innovation Commercialization Seed Fund, also known as the Acorn Innovation Fund, is enabled by the Legislature: "shall be used to advance the goals of job growth creation, innovation and economic development which may include, but shall not be limited to, the construction of prototypes, testing, market research and other steps necessary to bring the invention or concept to market in the commonwealth." The Acorn Innovation Fund supports principal investigators (faculty, graduate students and post-doctoral students) at Massachusetts research institutions (universities and medical centers) who seek to demonstrate the viability of their technology and advance them towards commercial use. Awards can be used to: 1) further develop a prototype, 2) gather additional data to demonstrate proof of concept, or 3) obtain data to compare the technology to existing technologies and show its competitive advantages. Several past Acorn Innovation grant winners have gone on to spinning out startups based on their inventions and have raised outside capital.

Here is the program summary re applications, reviewers and results for the past 7 years. Note: During 2021, MassVentures ran the Acorn program for both the FY21 and FY22 Cohorts on behalf of the Massachusetts Technology Transfer Center (MTTC) which was then housed at University of Massachusetts. More information on Acorn can be found on the MassVentures website at https://www.mass-ventures.com/mvcapital/acorn.

Acorn Stats for the past 7 years:

Year	Total Applications	UMass Applications	MA Applications	Winners	Proposal Reviewers
2024	**33**	**11**	**22**	**6**	**39**
2023	22	8	14	12	34
2022	37	8	29	12	55
2021	35	14	21	13	69
2020	24	12	12	13	23
2019	53	18	35	14	16
2017	49	29	20	10	20

MassVentures has been actively addressing the decline in UMass applications by working with the UMass's and the Executive Office of Economic Development to increase the number of applications. These efforts are reflected in the improvements seen in the FY24 cohort.

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FY24 Details:

Six grants of $32,500 each, for a total of $195,000, were awarded to faculty researchers from UMass Chan Medical School; the University of Massachusetts at Lowell and Dartmouth; Massachusetts Institute of Technology; Tufts University; and Brigham and Women's Hospital to assist them in testing the viability of their technologies and potentially bringing their research to market.

Selected by a group of external reviewers from a field of 33 applicants, the recipients were chosen based on their written proposal and a 3 minute video submitted by each applicant, demonstrating their project's technical merit, commercial viability, project plan and strength of team. Three projects selected are diagnostics or medical devices such as a real-time artificial intelligence (AI) system to improve diagnostic accuracy of cholangiocarcinoma or biomaterial innovation to build better biopolymer implants and building patient-specific intracardiac implants directly inside the human body for optimal stroke prevention. The remaining three are advanced material or other physical sciences based such as Mushroom-Inspired Vanadium Extraction or Nevermore PFAS: On-demand Capture, Degradation and Release of Per- and Polyfluoroalkylsubstances and creating a novel topical-based tick attachment cement crosslinking inhibitor (TACCI) to prevent the spread of tick-borne disease.

FY24 recipients of the MassVentures Acorn Innovation Fund awards are as follows:

Neil Marya, MD; Navine Nasser-Ghodsi, MD; UMass Chan Medical School
Development of a real-time artificial intelligence (AI) system to improve diagnostic accuracy of cholangiocarcinoma
Current tools for the diagnosis of bile duct cancer have low sensitivity and accuracy. These researchers have developed an artificial intelligence (AI) system to analyze videos of the bile ducts that outperforms standard diagnostic modalities. They will perform a prospective clinical trial evaluating the performance of this real time AI technology.

Ertan Agar, PhD, University of Massachusetts Lowell; Patrick Cappillino, PhD, University of Massachusetts Dartmouth
Mushroom-Inspired Vanadium Extraction
The novel vanadium chelator at the heart of the technology developed by these researchers binds to and is more selective for vanadium than any other compound known to date (i.e., 100 trillion times stronger than the best commercial binder). Their value proposition hypothesis is

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this technology could decrease the carbon intensity of current strategies for vanadium extraction, improve the economics of vanadium extraction and make previously uneconomical vanadium deposits commercially viable.

James Reuther, PhD; University of Massachusetts Lowell
Nevermore PFAS: On-demand Capture, Degradation and Release of Per- and Polyfluoroalkyl substances
The researcher's product, Nevermore PFAS, implements innovative, porous ion-exchange resins for the rapid, efficient removal of various PFAS derivatives from drinking water. Due to the reactive nature of these resins, the radical-induced degradation of PFAS can be initiated using UV-light or ultrasound while also regenerating the resins for circular PFAS remediation.

Ellen Roche, PhD; Connor Verheyen, Postdoc; Massachusetts Institute of Technology
In vivo additive manufacturing: building patient-specific intracardiac implants directly inside the human body for optimal stroke prevention
These researchers are developing a platform technology that combines the benefits of both minimally-invasive procedures and patient-specific additive manufacturing. With this new approach, they aim to generate personalized intracardiac implants directly at the target tissue site inside of the patient's body, all while avoiding adverse procedural complications and local tissue trauma.

David Kaplan, PhD; Vincent Fitzpatrick, PhD; Tufts University
Redefining Limits for Biomaterial Innovation - Building Better Biopolymer Implants
Many implants fall short of clinical needs due to material and manufacturing limitations. One example is ear tubes, among the most common pediatric implants (650,000 annually). Their innovation overcomes these limits, for the first time, offering biopolymer tubes with unique features like "degradability on demand" and bioactive compound delivery from the devices.

Yuhan Lee, PhD; Joseph Beyene, PhD; Brigham and Women's Hospital
Creating a novel topical-based formulation to prevent the spread of tick-borne disease
These researchers are pioneering a unique strategy to combat the spread of all tick-borne diseases by creating the first topical solution that prevents tick attachment to the skin.

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About

MassVentures is the Commonwealth's strategic venture capital team. MassVentures finds, funds, and fosters early-stage deep tech that fuels economic growth across the Commonwealth. www.mass-ventures.com

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