

# RESEARCH AND SCHOLARSHIP STRATEGIC PLAN (RSSP)



October  
2020

Year 2 Progress Report (Oct. 2019-Sept. 2020)

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YEAR 2 PROGRESS REPORT (OCT. 2019-SEPT. 2020)

## INTRODUCTION

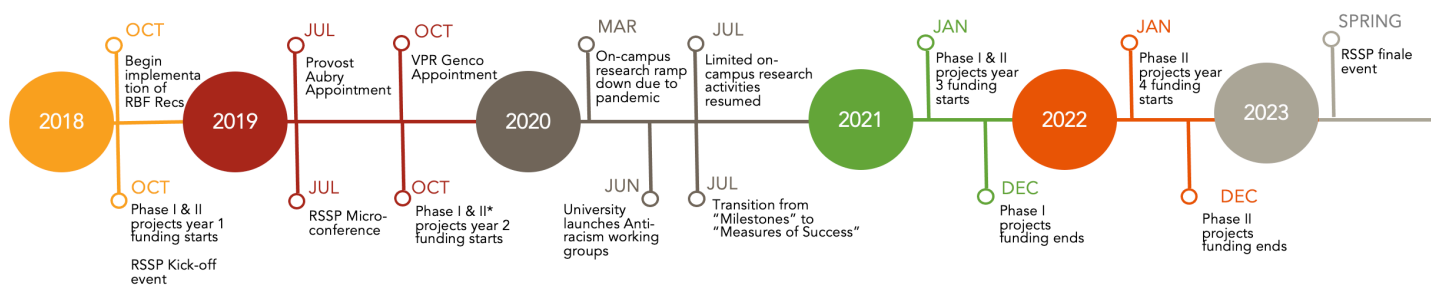
The Research and Scholarship Strategic Plan (RSSP) took a two-pronged approach to improving the conditions and outcomes for all members of the research community. Through Year 1 and Year 2 implementation of the RSSP, the University bolstered critical infrastructure and identified priorities with the potential to solve pressing societal and global challenges—grand challenges—that build on Tufts’ core strengths as an institution. RSSP support brought together a diverse group of faculty to address such challenges, creating a stronger propensity for collaboration and joint funding opportunities. To improve research conditions at the University level, the Office of the Vice Provost for Research (OVPR) partnered with other parts of the University to optimize the resources we have and to create the conditions for research and scholarship to thrive at Tufts.

The arrival of Caroline Attardo Genco as the new Vice Provost for Research in October of 2019, stimulated efforts to extend existing strategic planning to sustain and grow research with our partners, promote diversity, equity and inclusion in research, and broaden research funding by targeting large funding initiatives and industry partnerships.

This year Tufts’ research efforts took on an added urgency with the emergence of the COVID-19 pandemic. In addition to responding to the global health crisis, the call to end the structural racism rampant in the United States has challenged the University to rethink how we generate and use research.

In this report, we share our progress in implementing the Strategic Plan as we move toward what we believe is a new phase in research and scholarship at Tufts. It also provides an opportunity for reflection and planning as we move into Year 3. (see Figure 1)

Figure 1. RSSP Implementation Timeline



RBF: Resources, Barriers, and Facilitators of Research and Scholarship

\* Only 3 of 4 Phase II projects was funded

Timeline depicts key events planned activity for the duration of the RSSP period (2018-2023)

## BACKGROUND & EXECUTIVE SUMMARY

In January 2017 Tufts University launched the RSSP effort to promote future innovations in Research and Scholarship at the university. Using a stakeholder-driven approach, the effort assembled a 24-member steering committee comprised of faculty, staff, students, and postdoctoral fellows to oversee an engagement process. Careful analysis of these data identified two key areas of focus needed to advance research and scholarship at Tufts: Research Priority Areas and Critical Infrastructure.

### 1. RESEARCH PRIORITY AREAS AND FUNDED PROPOSALS

Faculty-led research groups received funding to forward mission-driven research initiatives that leverage Tufts' unique combination of expertise and resources. This report includes highlights of their work in Year 2. During the Planning Phase (January 2017-May 2018), Tufts identified research strengths and priorities through internal and external stakeholder engagement. In Year 1 (October 2018-September 2019), eight Priority Area Research Groups (PARGs) were awarded funding for up to three years (Phase I) or one planning year (Phase II). In Year 2 (October 2019- September 2020), seven PARGs were funded.

**Phase I Priority Area Research Groups (PARGs) renewed for the second year of a three-year funding period:**

**Comparative Race, Society, Translation (CRST)**

**Healthy Aging at Tufts**

**Laboratory for Living Devices (L<sup>2</sup>D)**

**Stuart S. Levy Center for Integrated Management of Antimicrobial Resistance (Levy CIMAR)**

**Phase II PARGs selected to receive funding for the first year of a three-year funding period:**

**Climate, Renewable Energy, Agriculture, Technology, and Ecology (CREATE) Solutions**

**Equity in Health, Wealth, and Civic Engagement**

**Tufts Institute for Global Obesity Research (TIGOR)**

**PARGs share the goal of charting our path forward as an innovative, civically engaged, student-centered, tier-one research university by:**

- **Advancing our educational mission**
- **Expanding our research expenditures**
- **Raising our research profile**

### 2. IMPROVEMENTS TO CRITICAL INFRASTRUCTURE

In Year 2, improvements to critical infrastructure were focused in three areas with many successes and the identification of new challenges. These areas build on the foundational work of a 28-member committee of faculty which convened in Year 1 to identify Resources, Barriers, and Facilitators (RBF) of Research and Scholarship. The three areas of focus were:

- **Supporting Collaboration and Translational Research**

Key success in this area included:

- Tufts Launchpad | Accelerator (TLA) awarded \$250K
- Initiated Tufts Springboard Seed Grant program and awarded \$500K

- Reframed job description for Senior Director of Technology Transfer & Industry Collaboration based on recommendations from the Vision, Function, Structure Report on Corporate Interfaces
- OVPR membership on the Global Advisory Board expanding and deepening Tufts' global engagement
- **Reducing Administrative Burden and Wait Time**

The COVID-19 pandemic required accelerated revision and development of administrative systems. Key successes in this area were:

  - Rapid assessment and advancement of new policies assessing University-wide research capacity
  - Ability to respond to changing federal guidelines, and support for all aspects of research (including research ramp-up and ramp-down in accordance with city, state, and federal guidelines)
  - Launch of new OVPR website with an improved user experience and the capability of sharing critical information in a timely and easy-to-navigate manner
  - Launch of an OVPR effort to develop new research cores with dedicated staff
- **Growing Awareness and Communication**

Key successes in this area centered on enhancing our customer-service approach and included:

  - Ten Research Town Halls focused on COVID-19 and Anti-Racism efforts at Tufts
  - Inventor Recognition event to celebrate the innovations of 20 faculty members
  - Development of the Research Council as an advisory body to OVPR
  - Enhancing capacity to promote research activities through the new OVPR website
  - Coordinated messaging with *Tufts Now*

Overall, improvements to infrastructure remain an important focus for the OVPR. Under the leadership of Caroline Attardo Genco as the new Vice Provost for Research, the University is making additional strategic investments to sustain and grow research with our partners, promote diversity, equity and inclusion in research, broaden research funding by targeting large funding initiatives and industry partnerships, and building the University's position in COVID-19 related research.

## RSSP PROGRESS REPORT

The goal of the RSSP is to provide effective strategies and resources to advance the research enterprise of Tufts University based on input from stakeholders, as well as internal and external circumstances. This ensures that Tufts research efforts contribute to identifying and solving the grand challenges of our time. Year 2 of the RSSP was shaped in critical ways by significant changes in senior administrative leadership, the COVID-19 pandemic, and the national outcry to end systemic racism.

In July 2019, Nadine Aubry, Ph.D. assumed the role of Provost. Caroline Attardo Genco, Ph.D., became Vice Provost for Research in October 2019. Collectively these positions oversee the funding, development, and implementation of the RSSP. Both leaders attended quarterly and annual meetings with PARG leaders, respectively, to learn about the research efforts of the PARGs. More importantly, these leaders attended PARG events, and created spaces for meaningful conversations with PARG leaders on how to sustain and build on the successes of the PARGs for the duration of the plan and beyond.

Despite many successes in Year 2, the research and operational improvement efforts of the RSSP were impacted by the COVID-19 pandemic. As of March 17, all staff except those essential to maintain the University's operational and academic continuity were required to work from home, keep regular hours and be available for online meetings. This included ramping down research labs and projects across all four of the University's campuses. Soon after the OVPR established the Integrative Safety Committee to review requests from across the University related to the continuity of research. Beginning in March the Research Council also met as frequently as needed to provide guidance and communication capacity to the OVPR regarding oversight of the research ramp-down, and to plan for the research ramp-up. (see Figure 2)

Figure 2. Timeline of COVID-19 Pandemic Impact on Research

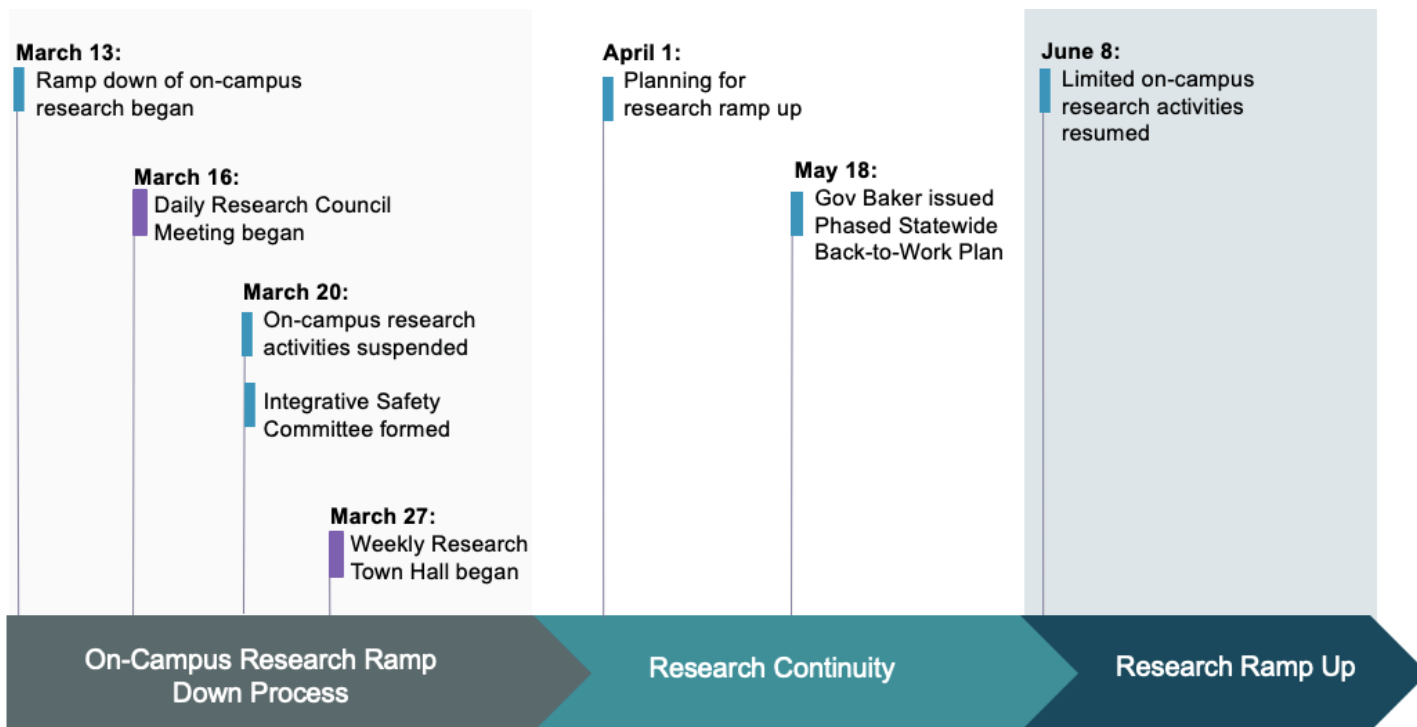


Figure depicts key events triggering the status of research activity at Tufts University in 2020.

The OVPR hosted 10 [Research Town Halls](#) over the course of four months to provide researchers and staff with timely communications, to discuss emerging issues, and partner with the research community to develop creative ideas for adapting the research enterprise to the pandemic context. On June 8, the OVPR initiated Phase 2 which limited research to minimal on-campus operations. At the time of this report, research remains in Phase 2. Many PARG activities and aspects of critical infrastructure development remain affected by research ramp-down; events moved to virtual spaces, and research projects slowed. Significantly, PARGs also demonstrated their ability to adapt to the changing research landscape, generating new ideas and innovations to alter the course of the pandemic as outlined below.

Diversity, Equity, and Inclusion efforts already central to the PARGs' commitment to impact, are being brought to the foreground by the University's call to end racism. President Anthony P. Monaco pledged to find and eradicate any structural racism at Tufts by taking the steps necessary to become what every member of our community would view as an anti-racist institution.

Tufts' coordinated [plan](#) is being shaped by five university-wide workstreams. Each focuses on different aspects of the academic and administrative enterprise: [Campus Safety and Policing](#), [Compositional Diversity](#), [Equity and Inclusion](#), [Institutional Audit and Targeted Actions](#), and [Public Art](#). These workstreams conclude in January 2021; the report and recommendations will be vetted by the Trustees and an implementation plan will be in place.

PARGs are central to these plans as they provide faculty, staff, and students with a supportive intellectual community engaged in targeted activities that support the University's commitment to diversity, equity, and inclusion. PARG commitments to anti-racism include programming to increase diversity, equity, and inclusion through pipeline programming (Levy CIMAR; CRST; TIGOR), seed grant funding (CREATE; CRST; Healthy Aging;), as well as providing the means for the public to operationalize research through an interactive website focused on [Equity in America](#).

While being responsive to the pandemic and anti-racism initiative, PARGs and OVPR continued with implementation of the RSSP. The following report documents the work of the PARGs and the OVPR to develop the critical infrastructure to support the evolving research enterprise in Year 2. While these efforts were unquestionably shaped by change and crisis, they also demonstrated the resiliency of the research enterprise at Tufts and a way forward in a rapidly changing context.

## PARG MEASURES OF SUCCESS

All Priority Area Research Groups (PARGs) draw on existing areas of excellence, expand opportunities for cross-disciplinary collaboration, and do this with a view toward the greatest potential for future innovations and global impact.

In Year 2, PARG leaders refined the cross-PARG goals and collaboratively identified five overall outcomes to demonstrate progress toward **charting our path forward as an innovative, civically engaged, student-centered, tier-one research university** by advancing our educational mission, expanding our research expenditures, and raising our research profile.

### **Outcome 1: Increase visibility of work nationally/internationally with recognition from target audiences**

Increasing the visibility of Tufts research through the RSSP-supported portfolio creates opportunities to apply findings in practice and policy settings; attract new collaborations; and, influence funding decisions for further research. PARGs represent some of Tufts' most promising and "uniquely Tufts" research endeavors. PARGs utilize several strategies to ensure their work is seen by target audiences including creating effective websites; securing high-profile appointments and presentation opportunities; and generating a body of work which allows for Tufts faculty to be highly visible champions of the PARG's mission.

### Highlights:

- Dynamic Website: The *Equity in Health, Wealth and Civic Engagement* group's dynamic and powerful data analysis tool is publicly available on its website: <https://equityresearch.tufts.edu> ; it was featured in [US News](#).
- Faculty champion of the PARG's mission: *Levy CIMAR's* Helen Boucher addressed Congress in 2019 and 2020 and served in 2020 on a panel for the international Antimicrobial Resistance Action Fund, where more than 20 pharmaceutical companies committed to give \$1 billion and collaborate with industry and non-industry partners to develop two-four antibiotics and bring them to market by 2030.

### Outcome 2: Increase the # of high impact publications related to the priority area

Academic publications in journals, books, and other peer-reviewed writing validate the importance of PARG research in and across specific fields and are a mechanism for raising Tufts' research profile. Some PARGs focus on collaboratively developing a few publications for peer-reviewed journals, and others are tracking the breadth of work of their members.

### Highlights:

- *CREATE Solutions* documented 37 peer-reviewed publications related to their mission by active members of the PARG and utilized RSSP funds to support a [Flagship Publications](#) series that aims to be a "how-to" series on a range of critical climate-related topics.
- *TIGOR* inventoried over 100 peer-reviewed journal articles related to obesity. *TIGOR* [highlighted many on their website](#).

### Outcome 3: Increase faculty satisfaction, hires and retention

Visionary and productive faculty are essential to Tufts' ability to advance its educational mission and expand its research portfolio. PARG leaders recognize faculty satisfaction and retention is critical to the development of their groups and the success of their research efforts. The RSSP process surfaced several activities common across PARGs that contribute to faculty satisfaction and retention:

- The creation of research communities and a sense of belonging by working on a common mission. This is especially important to interdisciplinary faculty that do not fit well in traditional departmental silos, providing spaces for collaboration and academic discussions.
- Research-driven intellectual communities provide strong, mission-based opportunities for mentorship that aligns well with the University's commitment to diversity, equity and inclusion.
- Opportunities to receive recognition from peers and internal and external audiences.
- Demonstration of commitment from the University to support mission-driven research.
- Providing faculty with administrative supports for fundraising activities and the ability to plan workshops, events, and retreats which allow the research community to flourish and for faculty to thrive.
- Offering funding to faculty to pursue early-stage research and collect valuable preliminary data.

While many PARGs will continue to focus on faculty satisfaction and retention through these activities, several groups are also working closely with schools/departments to inform hiring decisions to benefit the research endeavors of the PARGs and the University.



### Highlights:

- *Comparative Race, Society, Transformation (CRST)* group provided public humanities research grants to projects that address our current crises, in particular those relating to racial justice. The group provided grants to faculty from across seven departments to support work around race, equity, and social justice.
- The *Tufts Institute for Global Obesity Research (TIGOR)*'s Tufts Talks Obesity Series attracted over 175 participants annually. The events promoted collaboration and networking which are essential to faculty engagement and satisfaction within the group.

### Outcome 4: Increased opportunities for students

The engagement of undergraduate and graduate students in high-profile research endeavors, like those supported by the RSSP process, is essential to advancing Tufts' educational mission. PARGs provide opportunities specifically designed to foster the next generation of interdisciplinary researchers who will carry forward their mission. Students have taken vital roles within PARGs: from working in labs to leading research group discussions to presenting findings. Students make significant contributions to the research endeavors of PARGs while gaining access to unparalleled opportunities to hone research skills and learn from world-class researchers. This symbiotic relationship is necessary to Tufts' success as thriving research and education institution.

### Highlights:

- *Levy CIMAR*'s efforts to increase the STEM pipeline included hosting students from Boston-area Brockton High School who presented posters depicting original experiments and data on antimicrobial resistance to the Tufts Community.
- *CREATE Solutions* PARG members launched four courses attracting undergraduate and graduate students from at least 16 programs across the university and provided 12 networking and training opportunities, bringing the number of students and post-docs engaged to over 300.
- *Healthy Aging at Tufts* hosted two high-profile seminars that attracted over 300 in-person attendees. These events provide opportunities for students to engage with speakers in intimate post-event sessions with preeminent researchers on aging.
- *TIGOR* launched its inaugural Diversity Post-Doctoral scholar program

### Outcome 5: Increase funding to support PARG infrastructure and ongoing research

Expanding the research expenditures of Tufts means development of infrastructure for the PARG to sustain their research into the future. Research groups with a sustainable infrastructure are able to:

- Develop and implement strategic, business, and funding plans
- Build necessary research facilities
- Sustain steering and advisory committees and hold regular research meetings
- Develop websites and communications plans

RSSP seed funding is used by all PARGs to support these activities. How PARG leaders leverage these seed funds is critical to the group's success and long-term sustainability. Balancing research activities and infrastructure development is one of the challenges of PARG leadership that the RSSP process has surfaced and for which it is



actively identifying workable solutions. As PARGs strategically develop their own critical infrastructure and expand their research and fundraising capacity, the groups' and Tufts' research expenditures will increase at predictable rates.

#### Highlights:

- *Levy CIMAR* is building a sustainable stream of funding for critical infrastructure by utilizing a portion of indirect costs from extramural research grants. With *Levy CIMAR's* extramural grant funding for research nearing \$15 million, the group hired an Executive Director to manage the fundraising and budgeting processes.
- *L<sup>2</sup>D* partnerships with industry are central to the mission of the group, giving them the ability to respond quickly and produce devices in response to urgent global challenges like the COVID-19 pandemic. During the pandemic, a local partner provided the group with over \$500,000 in in-kind prototype development for a revolutionary point-of-care and low-cost COVID-19 diagnostic device that is expected to be available for widespread use in 2021.

## OVPR SUPPORT FOR PARGS

The OVPR provided ongoing support for PARGs including seed funding, administrative support, assistance with developing funding plans, and raising the profile of groups by communicating their work to the Tufts community and national audiences. Quarterly meetings of PARG leaders, an annual reporting process, co-development of measures of success, and open dialogue between OVPR staff and group members created the conditions necessary for the active cultivation of individual research groups and cross-pollination across groups. OVPR support to PARGs is focused on five **areas of development**:

- **Group focus** – Established by defining an initial project or creating a purpose/mission statement for the group
- **Leadership formation** – Establishment of a Steering Committee and key administrative support
- **Diversity, Equity and Inclusion efforts** – in concert with the University’s strategic initiative to make Tufts an antiracist institution
- **Growth and development** – Targeted support for: emerging and promising research (e.g., pilot grants administered by the PARG), presentation opportunities, organizational development, sustainability planning, and communications efforts
- **Measures of Success** – Defined and aligned with the group’s focus and University-wide priorities

As the RSSP efforts matured in Year 2, two additional research groups were created to address the established challenge of *mental illness* and the emerging threat of *COVID-19* to our society:

- The **Mental Health Research Group** was formed to address gaps in the knowledge base, especially from a biological perspective. To continue the exploration of this and other possible models, two groups were formed: Epidemiology/Population Health and Transgenerational Model Systems. The goal of the research group is to understand the etiology of rising rates of mental health and substance use disorders, with a focus on the potential role of different factors that may be malleable with intervention. [Eight projects](#) were selected in July 2020 for seed funding.
- The **COVID-19 Research Group** emerged from physician and faculty-led conversations in April of 2020 and the OVPR was asked to provide ongoing-support and development for the group. The OVPR collaborates with Tufts Medical Center to support a [Biorepository and Comprehensive Database](#) and a [seed funding program](#). The group established a [Steering Committee](#), holds regular research group meetings, and hosts public events showcasing Tufts research strengths (see Tufts Research [Symposium](#) and [Forum](#) websites).

To support the development of these groups, OVPR used its convening power to:

- Assemble a group of expert faculty interested in diverse aspects of these fields
- Facilitate the formation of cohesive teams
- Implement two competitive intramural seed grant programs to specifically support research in those areas

## CRITICAL INFRASTRUCTURE PROGRESS

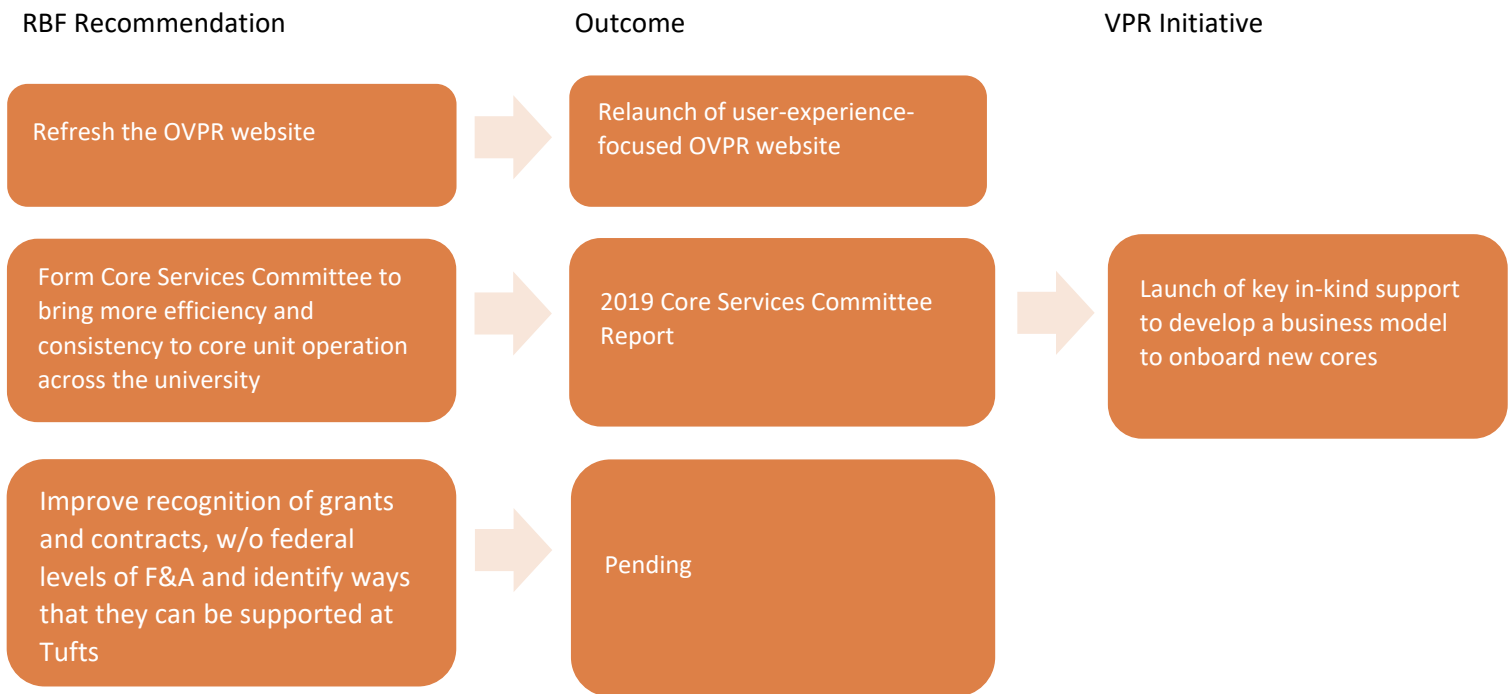
Changes in leadership within the OVPR and the Provost’s Office together with the impact of COVID-19 pandemic shaped implementation of many of the specific activities in each category of critical infrastructure development – in some cases requiring a change of course and in others creating opportunities for new directions. In Year 2, OVPR continued to improve critical infrastructure across the three categories: Supporting Collaboration and Translational Research, Reducing Administrative Burden and Wait Time, and Growing Awareness and Communication. These categories were identified by the faculty-led Resources, Barriers, and Facilitators to Research (RBF) working group in Year 1.

Recommendations made by the RBF required that OVPR partner with other parts of the University to optimize the resources we have and to create the conditions for research and scholarship to prosper at Tufts. The following section highlights key successes and challenges in each of the three categories (see also the [Year 1 report](#) pages 12-15).

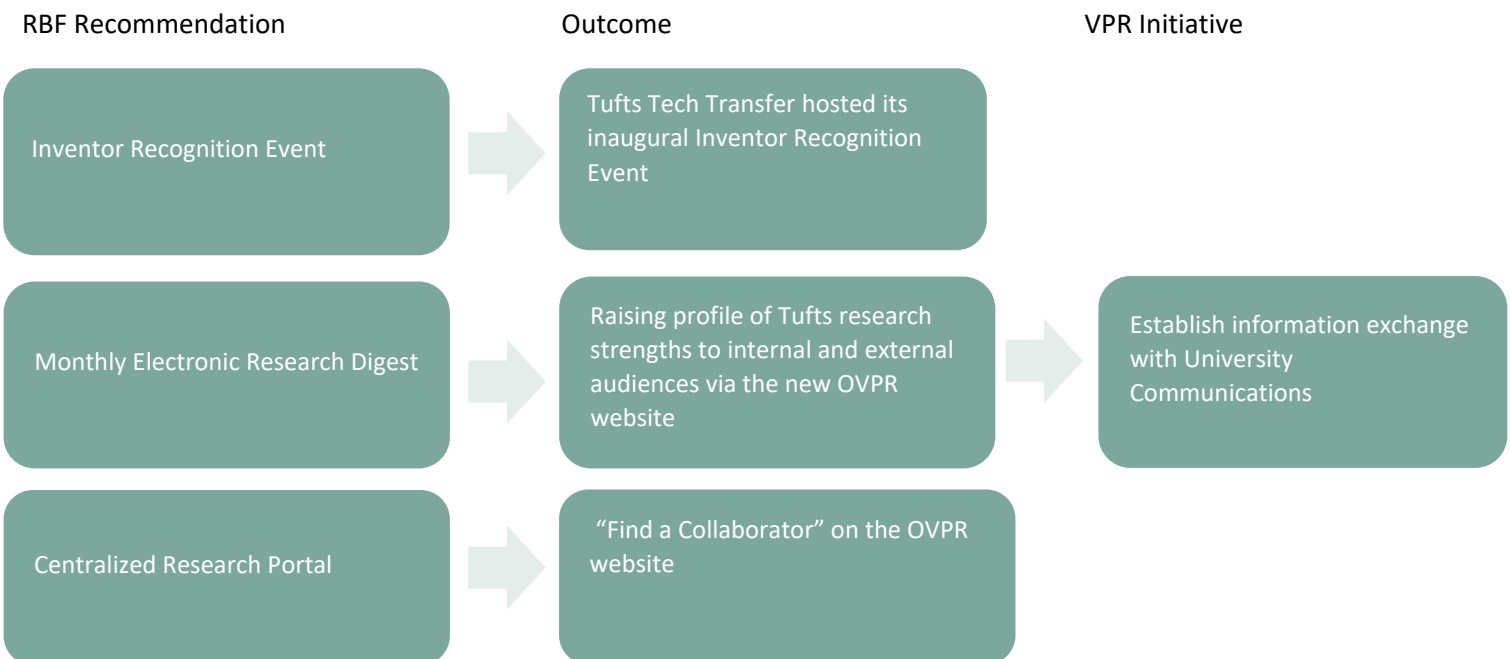
### **Supporting Collaboration and Translational Research**



## Reducing Administrative Burden and Wait Time



## Growing Awareness and Communication



## CONCLUSION

The RSSP process is making significant contributions to shaping the next phase in research and scholarship at Tufts. As areas of strength and investment, PARGs are in alignment with University-wide Goals for diversity, equity, and inclusion, and provide a research-driven functional mentoring program that is VALUED, SUPPORTED, and ACCESSIBLE. The examples set by our PARG leaders and their research efforts enhance Tufts' ability to make significant research

contributions to solve pressing grand challenges of this year and beyond while also creating transformative experiences for faculty, students, and staff. Similarly, implementation of the RBF recommendations made important strides in creating an infrastructure that will support the emerging research enterprise. While Year 2 of the RSP efforts were impacted by the COVID-19 pandemic and resulting research ramp-down, this context also provided opportunities for innovation and a thoughtful research ramp-up that will continue to take shape over Year 3. As we look forward to Year 3, it is important to reflect on the successes, challenges, and highlights of the past year and continue to engage our stakeholders in the identification and implementation of OVP policies, practices, and use of resources that will support the growth of excellence of Research and Scholarship at Tufts.

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## **APPENDIX A: PRIORITY AREA RESEARCH GROUP (PARG) SUCCESSES**

RSSP support brought together diverse groups of faculty, enabling the interdisciplinary collaboration necessary to push boundaries and ask questions that will take our knowledge as a society to the next level. Research and scholarship that rises to the top has the greatest societal impact is published in the most prestigious peer-reviewed journals, attracts partners and funders, and inspires the next generation of researchers. The collective successes of the PARGs demonstrate that strategic investments can yield remarkable results. Each of the PARGs is unique in how it pursues its mission by thoughtfully planning research activities, engaging students, and sharing results and recommendations with pertinent audiences. Despite a University-wide research ramp-down due to the COVID-19 pandemic, PARGs made significant progress towards their goals in Year 2.

## PHASE I PRIORITY AREA WORKING GROUPS

### COMPARATIVE RACE, SOCIETY, TRANSFORMATION (CRST)



#### Mission

Humanities research that contributes to the interpretation of global encounter, conflict, and exchange helps us to understand better the legacies of ongoing disparities of social, cultural, and economic power, particularly around the concept of race. This research priority area supports research that offers transformational visions for social change around race as part of contemporary public debates. We believe that rigorous humanities research on histories of racial inequality and social justice enables public engagement on critical civic issues, building a diverse, robust discussion in the public humanities.

#### Sustainability

The group supports research that serves the broader project of establishing and giving prominence to the new interdisciplinary Department for Studies in Race, Colonialism, and Diaspora (RCD). This includes providing leadership and vision in expanding the department's research capacity and exploring development of an innovative and groundbreaking RCD graduate program to serve needs in the academy and beyond.

#### Events and Achievements

- 16 faculty fellows with affiliations across 13 departments
- Two postdoctoral fellows and six faculty developed peer-reviewed journal articles and chapters
- Course on Culinary History of the Modern Middle East & North Africa taught by Postdoctoral Fellow Anny Gaul was nominated as one of the best classes in the 2020 senior survey
- Facilitation of a weekly communal writing space including faculty fellows, graduate students, and postdoctoral fellows
- Hosted a panel discussion on funding opportunities in the humanities
- Sponsored eight pilot grants to support faculty initiatives in the humanities and social sciences to link current crises (i.e., the COVID-19 pandemic and the Black Lives Matter movement) to research and teaching. Recipients:
  - *Black Matters: On Black Breath* (\$5,000): Kimberly Bain (English)
  - *Anthropology Speaker Series: Global Racism, State Violence, and Activism* (\$5,000): Amahl Bishara and Sarah Luna (Anthropology)
  - *Unworking* (\$3,255): Alexander Blanchette (Anthropology)
  - *Building Transformative Justice at Tufts* (\$5,000): Daanika Gordon (Sociology) and Lily Mengesha (Theatre, Dance, and Performance Studies)
  - *Another Tufts is Possible* Forum Series (\$5,000): Kareem Khubchandani (Theatre, Dance, and Performance Studies)
  - *Civic Education Consortium: Building our World Through Civic Humanities, Critical Thinking, and Community Engagement* (\$5,000): Kris Manjapra (History; Studies in Race, Colonialism, and Diaspora)
  - *Stable Ground: Eviction Defense Terminals* (\$5,000): Anthony Romero (SMFA)
  - *Downtown Crossing* (\$3,800): David Valdes (English)



## HEALTHY AGING AT TUFTS



### Mission

Tufts University has the opportunity to become a leader of research into the underlying molecular underpinnings of aging and the translation of good science into effective preventive and treatment strategies that will support improved health, functional health span, and quality of life in our aging population. With its wealth and breadth of interdisciplinary expertise across three campuses, we are uniquely situated to become a leader in the study of healthy aging. The mission of the Healthy Aging at Tufts Initiative is to build on our existing strengths and to create a hub of aging research and training to significantly increase the impact of aging research at Tufts and beyond.

### Grants Awarded and Sustainability

Healthy Aging at Tufts' strategy for sustainability is to pursue foundation and corporate sponsorships to provide ongoing funding to support an active steering committee to design events and the pilot grant program. The group's sponsored research endeavors complement and expand those of the Jean Mayer USDA Human Nutrition Research Center on Aging (HNRCA) and the diverse strengths of schools and departments across Tufts, including the Schools of Medicine, Dental Medicine, Engineering, and Nutrition.

An early indicator of success of this strategy:

- Group's review and cataloging of Aging Research at Tufts revealed a strong foundation in the area including \$43.7 million in aging research grants from the NIH
- \$1.2 million raised for first year of new research projects (NIH R21 and NIA R01) for Alzheimer's research building on the work of pilot grantee (Tesco)

### Events and Achievements

- Over 75 peer-reviewed publications by group members with selected publications available [on the group's website](#). High-impact publications include:
  - *BACE1 partial deletion induces synaptic plasticity deficit in adult mice*. Sci Rep. doi: 10.1038/s41598-019-56329-7. PMID: 31882662
  - *A low glycemic diet protects disease-prone Nrf2-deficient mice against age-related macular degeneration*. Free Radical Biology and Medicine. doi: 10.1016/j.freeradbiomed.2020.02.010. PMID: 32068111
- Provided \$210,000 in seed funding to Tufts researchers: three \$40,000 pilot grants in Year 1 and two \$45,000 pilot grants in Year 2. Year 2 grantees:
  - *Genetic regulators of senescence* (Poltorak)
  - *Mechanisms of Drosophila lifespan extension by Parabacteriodes distasonis* (McVey)
- Healthy Aging seminar series hosted two high-profile seminars by preeminent aging researchers that attracted over 300 in-person attendees. The 2020 events attracted over 2,000 views on the Healthy Aging YouTube page, with reposts on the [Health Guru website](#). In addition, events provide opportunities for students to engage with speakers in intimate post-event sessions.
- Steering Committee Chair, Dr. Fielding, was co-organizer of the annual International Conference on Frailty and Sarcopenia Research held in March 2020 in Toulouse, France and serves on the World Health Organization's Clinical Consortium on Healthy Aging

## LABORATORY FOR LIVING DEVICES (L<sup>2</sup>D)



### Mission

The Laboratory for Living Devices (L<sup>2</sup>D) is working to unlock the unique properties of natural materials to meet the most critical challenges of our time. L<sup>2</sup>D works at the intersection of materials science, chemistry, environmental science, engineering, human health, and the arts. Our innovations are driving scientific discovery, sustainable manufacturing, and translation into real-world applications.

### Grants Awarded

- \$625,000 NIH RADx for COVID-19 Diagnostic Sensing “Lollipop” (Mace)
- \$430,000 Obtained funding for a “living electronic” characterization suite from the Office of Naval Research (Omenetto)
- Obtained funding for industrialization of biopolymer processing on the industrial scale (Canon Sponsored Research Agreement \$500,000) (Omenetto)
- \$500,000 in-kind prototype development from FLEXcon (Omenetto)

### Sustainability

L<sup>2</sup>D aims to be a Tufts research center by 2021 through implementation of its strategic plan and development of a business plan. The group is uniquely positioned to collaborate with federal funders, foundations, and industry to receive funding and in-kind support to further its research agenda and fulfill its mission of widespread use of pioneering materials.

### Events and Achievements

- Prototype of COVID-19 Diagnostic Sensing Lollipop featured on national news and reviewed by White House staff.
- Fiorenzo Omenetto elected as Fellow of National Academy of Inventors (2019).
- L<sup>2</sup>D Day in November 2019 showcased results and research for the Tufts academic community, the funding community (federal and private), industry partners, and thought leaders from across Boston and beyond.
- Press coverage on sensing inks, including high visibility news coverage on Scientific American. <https://www.scientificamerican.com/article/color-changing-ink-turns-clothes-into-giant-chemical-sensors/>
- The 18 peer-reviewed [articles featured on the group’s website](#). The first journal article to feature research data generated by the group was published in Year 2:
  - *In situ Hemolysis in a Three-Dimensional Paper-based Device for Quantification of Intraerythrocytic Analysis*. Analytic Methods: <https://doi.org/10.1039/C9AY02292A>

**STUART B. LEVY  
CENTER FOR  
INTEGRATED  
MANAGEMENT OF  
ANTIMICROBIAL  
RESISTANCE  
(CIMAR)**



### Mission

Levy CIMAR addresses the rise and spread of antimicrobial resistance (AMR). AMR is ranked among the WHO's top 10 threats to global health, with 700,000 people dying annually from drug-resistant infections. AMR occurs when antimicrobial treatments like antibiotics become ineffective against the microorganisms they were created to fight. Partnering Tufts Medical Center and several schools at Tufts University, Levy CIMAR is poised to lead AMR research, drug discovery, patient care, community outreach, and education.

### Grants Awarded

Levy CIMAR successfully raised \$14.9 million to support its work. Grant highlights include:

- \$3.5 million from the NIH for Lesion-centric optimization of multidrug therapies for tuberculosis (Aldridge)
- \$2.4 million from NIH for Molecular bases of metal acquisition by an intravacuolar pathogen. (Isberg)
- NSF funding to support a Longitudinal investigation of the decision process in adoption of course-based undergraduate research. (Bascom Slack)

### Sustainability

Levy CIMAR aims to be a recognized Tufts research center, including a state-of-the-art core facility, by 2021 and is conducting an aggressive capital campaign to this end. The recent Year 2 hiring of an Executive Director experienced in academia and industry will ensure successful implementation of the group's strategic and business plans.

### Events and Achievements

- 50+ peer-reviewed Levy CIMAR-related publications by members with [key publications featured on their website](#). High impact publications include:
  - *Urban informal settlements as hotspots of antimicrobial resistance and the need to curb environmental transmission.* [Nature](#).
  - *U.S. Efforts to Curb Antibiotic Resistance - Are We Saving Lives?* *New England Journal of Medicine*. doi: 10.1056/NEJMp2004743. PMID: 32846058
- Levy CIMAR participated heavily in [Tufts Mini Med School](#) for 125 students in July 2020, where AMR was the overarching theme of the program with several Levy CIMAR faculty as course directors.
- Monthly "Levy CIMAR Science Lunch" events are open to the Tufts community, and feature talks from Levy CIMAR faculty and their laboratories. The general format includes a Journal Club-style presentation, or a talk focused on original research, discussion, and time to socialize.
- 2<sup>nd</sup> Levy CIMAR Collaborative Workshop: "Fighting AMR Together" held in November 2020 with an aim of fostering collaborations and networking within the two institutions (Tufts University and Tufts Medical Center), and with outside colleagues focused on AMR. Several collaborations came out of our 2018 Workshop.
- Hosted 33 students from Boston-area Brockton High School who presented posters depicting original experiments and data on antimicrobial resistance to the Tufts Community.
- [September 2020 event for the Levy family to officially name the center](#): "Stuart B. Levy CIMAR at Tufts." About 60 friends, family, and colleagues joined by Zoom.
- Helen Boucher contributed national AMR policy speaking at the US launch of the \$1 billion [AMR Action Fund](#), participating in the Presidential Advisory Council on Combating Antibiotic-Resistant Bacteria, meeting with the Federal Drug Administration Commissioner, and engaging with the Aspen Health Strategy Group project which led to the publication of, "[Addressing Antimicrobial Resistance](#)."

## PHASE II PRIORITY AREA WORKING GROUPS

### C.R.E.A.T.E SOLUTIONS



Climate  
Renewable  
Energy  
Agriculture  
Technology  
Ecology

#### Mission

To create solutions to the global climate change crisis by fostering transdisciplinary research collaboration across all schools at Tufts. Our research responds to the integrated nature of the technical, environmental, and societal challenges we face. We aim to develop innovative approaches to prevent catastrophic climate change, increase resilience to the climate change already occurring, advance the low-carbon transition, and educate a new generation of professionals who can create new knowledge and provide solutions.

#### Grants Awarded

CREATE faculty raised over \$3 million in Year 1 and over \$4 million in Year 2. Grant highlights include:

- \$600,000 from the William & Flora Hewlett Foundation for the Climate Policy Lab including its U.S./China program (Gallagher)
- \$900,000 from the Pacific Northwest Lab to Enhance GCIMS scenario Discovery Capabilities (Lamontagne)
- \$1,100,000 from the U.S. Bureau of Safety and Environmental Enforcement, the MA Clean Energy Center, the US Department of Energy and the New York State Energy Research and Development Agency for offshore wind projects related to structural health monitoring of the first U.S. offshore wind farm (Hines)

#### Sustainability

CREATE's strategy for sustainability is to pursue foundation and federal grant opportunities and partnerships that forward the group's research mission and complement the efforts of existing hubs, including the Center for International Environment and Resource Policy (CIERP) at The Fletcher School, the offshore wind initiative at the School of Engineering, and the Agriculture, Food and Environment Program at the Friedman School of Nutrition.

#### Events and Achievements

- 37 peer-reviewed publications and three book contributions, some of which are featured in [publications section of the CIERP website](#). Two example publications:
  - *Plant-Climate Interaction Effects: Changes in the Relative Distribution and Concentration of the Volatile Tea Leaf Metabolome in 2014–2016*. [Frontiers in Plant Science](#).
  - *Do benefits of seed dispersal and caching by scatterhoarders outweigh the costs of predation? An example with oaks and yellow-necked mice*. [Journal of Ecology](#).
- 42 news story mentions in publications including: [Nature Outlook](#), [NPR](#), [Forbes](#), [Scientific American](#), [National Geographic](#), [Discover Magazine](#) and the [LA Times](#).
- Gallagher wrote op-eds for the Hill on the [coronavirus and climate](#) and the [stimulus](#), and was cited by [Vox](#), [PolitiFact](#), [Slate](#), and spoke on [Marketplace Morning Report](#).
- Two pilot awards made for issues of the Flagship Publication Series, designed to build the brand and help others in the field:
  - Viability of pollinator habitats in human-dominated landscapes (Crone)
  - Community-Based Natural Farming in India on income, productivity and resilience (Griffin)
- Lectures and dinner series to build mission and increase participation
- Gallagher invited to serve on the National Academy of Sciences committee on decarbonization in the U.S. Gave presentations to the Council on Foreign Relations, International Energy Agency, World Sustainable Development Summit 2020 in New Delhi alongside Secretary of New and Renewable Energy Anand Kumar (Feb. 2020). Selected to participate in US-China, US-India, US-Japan, and US-EU Track II Dialogues on Climate Change in summer and fall 2020.

## EQUITY IN HEALTH, WEALTH, AND CIVIC ENGAGEMENT



### Mission

Tufts will become the leading university in the world devoted to the study of equity with an interdisciplinary approach that involves a broad definition of equity (encompassing health, voice, and wellbeing as well as wealth and income); a philosophical discussion of what constitutes justice; a positive focus on achieving equity instead of merely analyzing inequity, and attention to how active citizens can improve the world.

### Grants Awarded

Researchers successfully raised over \$18 million in grants related to Equity. Grant highlights include:

- \$600,000 from the Ford Foundation for “Transforming Opportunity Structure by Connecting Youth Organizing to Mobility” (Kawashima-Ginsberg)
- NSF funded Cooperative Congressional Election Study (Schaffner)
- New America Foundation funding for “Ranked-Choice Voting and Minority Representation” (Duchin)
- CDC and Council of State and Territorial Epidemiologists funding for collaboration with state public health departments of a study on “Opioid Vulnerability Analyses in 11 States” (Stopka)
- Tufts Data Intensive Studies Center (DISC) is supporting a junior faculty member to develop data science skills and take advantage of mentoring and publication opportunities

### Sustainability

Equity in Health, Wealth, and Civic Engagement aims to be a Tufts research center by 2022. Sustainable support for the center will be raised through grants from and strategic partnerships with federal agencies, foundations, and policymakers.

### Events and Achievements

- Designed, conducted, and analyzed a nationally representative survey of 1,267 Americans to explore equity and inequity in health, wealth, and civic engagement in the U.S.
- Designed and launched an interactive website designed for policymakers, reporters, and the public that allows easy visualization of selected results from the survey along with short published research briefs by our team: <https://equityresearch.tufts.edu/>
- Wrote and published six specific research briefs on topics related to policing and COVID-19 and issued them as press releases, yielding coverage in venues like [WGBH-Boston](#) and [US News](#)
- Developed 14 proposals for more complex, academic papers for peer-reviewed journals based on the nationally representative data; six manuscripts are currently in development

**TUFTS INSTITUTE  
FOR GLOBAL  
OBESITY  
RESEARCH  
(TIGOR)**



### Mission

TIGOR's mission is to make high-impact discoveries that support training and actionable solutions to the global obesity crisis. We aspire to be a leading collaborative for global obesity research, to publish research in the highest impact journals, attract new faculty, train students and fellows, integrate civic and real-world engagement, and significantly increase our funding through grants and innovative revenue generation models.

### Grants Awarded

**TIGOR raised over \$10 million for its research. Grant highlights include:**

- \$8.5 million from the USDA for the WIC Telehealth and Intervention Center (Hennessy and Economos)
- USDA/ARS grant to study energy regulation (Roberts)
- NIH grant to study Artificial Intelligence and Computer Visioning to assess Dietary Composition (Hennessy and Economos)

### Sustainability

TIGOR aims to be a Tufts research center by 2022 through the development and implementation of strategic and business plans that align the group's successful research initiatives and raise its national and international profile.

### Events and Achievements

- Over 100 peer-reviewed journal articles related to obesity were published by TIGOR faculty, and many are [highlighted on their website](#). High-impact publications include:
  - *Integrating Complex Systems Methods to Advance Obesity Prevention Research*. Health Education & Behavior. doi: 10.1177/10901981198649
  - *Effects of food supplementation on cognitive function, and cerebral blood flow and nutritional status, in young children at risk of undernutrition: a family-randomized controlled trial*. British Medical Journal 2020;370:m239. [doi.org/10.1136/bmj.m2397](https://doi.org/10.1136/bmj.m2397)
- Tufts Talks Obesity Series engaged members of the research community across campuses (175 total in Year 1: 189 total in Year 2)
- Monthly Obesity Student Journal Club supported 10 students with nine sessions
- Nine national and international presentations
- Awarded four mini-grants and seven pilot grants to support emerging projects
- Conducted a social network analysis to identify existing strengths of the group



## APPENDIX B: RBF RECOMMENDATIONS

### Supporting Collaboration and Translational Research

#### *Successes*

- **The Tufts Launchpad Accelerator (TLA) awarded Nine grants (five in 2019 and four in 2020 of \$20-\$75k each).** This grant program is funded by the University and administered by OVPR to address the greatest challenge in academic technology transfer, which is the funding gap – often referred to as the “valley of death” – between where federal funding of basic research ends and commercial interest begins. (RBF recommendation: establish a proof-of-concept fund)
- **Cost of Research Project and Disseminating Research Funding Information (VPR Initiatives).**  
*Cost of Research Project*  
 To understand the matrix of support required to succeed in the research enterprise, as well as the many indicators of success that are not reflected in quantifiable measures such as research expenditures, the OVPR is working together with the Office of Budget and Financial Planning to develop a formula that more accurately measures the cost of research and return on research investments.

*Disseminating Research Funding Information Committee*  
 This Committee comprised of individuals from central units across the University is working to create a standard suite of reports that combine data from multiple enterprise applications. These reports will be used to make informed decisions about the research investments and supports.  
 (RBF recommendations: Benchmark the Tufts Collaborates Program)
- **Hiring of new Senior Director of Technology Transfer & Industry Collaboration to advance early stage innovations, industry collaborations, and technology transfer, both nationally and internationally.** Based on a 2019 report produced by the Vision, Function, Structure Report on Corporate Interfaces, OVPR developed the job description and led the hiring process in partnership with Isaacson and Miller, an external recruiting firm. [William Shaw](#) has been appointed Senior Director. (RBF recommendation: Establish a task force to make recommendations that will encourage more seamless support of Industry Partnerships/Collaborations)
- **OVPR representative appointed to University’s new Global Advisory Council (GAC).** The GAC’s charge is to provide guidance and support on University-wide priorities and initiatives for expanding and deepening Tufts’ global engagement, as well as enhancing coherence in the University’s global presence, in service of the university’s global engagement mission. This appointment will ensure that the research interests of the University are prioritized and resources essential for collaboration with international scholars are garnered. Beginning in March 2020, international travel was restricted due to the COVID-19 pandemic. While this did not halt collaboration with international scholars, at the time of this report international travel is still highly limited and research ramp-up of international research projects was still in process. (RBF recommendation: Housing for Visiting Scholars, especially international visitors)
- **Global Advisory Board (in formation).** Working with the Senior International Officer and Associate Vice Provost Diana Chigas, the OVPR is putting together a board of experts to assist faculty in establishing, maintaining, and furthering international research partnerships.

#### *Challenges*

- Due to the impact of COVID-19 pandemic on University operations there is currently limited progress for the RBF recommendation around Secondary Appointments between Schools and establishing transparent policies for mechanisms by which faculty can apply for teaching/clinical leave on a school-by-school basis.



## Reducing Administrative Burden and Wait time

### *Successes*

- **Relaunch of user-experience-focused OVPR website.** In July, the OVPR launched a new website with an enhanced search component and piloted new collaboration spaces. The first test of the website was providing timely information and adequate resources to researchers during the research ramp-up process during the COVID-19 pandemic. The new look and feel of the website were carefully crafted to allow users to navigate quickly to the information and resources most relevant to them. (RBF recommendation: Refresh the OVPR website)
- **Launch of key supports to develop core services.** The OVPR analyzed existing materials on CORE services, a wide range of facilities, tools, and services available to researchers at Tufts and beyond. Led by Scott Perkins, the report suggested the purchase of iLab, a scheduling and pricing platform, the cost of which would be shared across the cores. OVPR dedicated staff resources to: develop a business model to onboard new cores or refresh existing facilities (such as the Tufts University/Tufts Medical Center collaborative Biorepository as well as Tufts' Regional Biosafety Lab), analyze existing core business plans, and routinize cost models to make them more accessible and appealing to the greater Boston research community before moving forward to a consideration of purchasing the iLab platform. (RBF recommendation: Form Core Service Committee to bring more efficiency and consistency to core unit operation across the university)

### *Challenges*

- **Recognition of collaborative grants.** While OVPR is developing new communication channels for recognizing faculty success in securing grants and contracts, challenges remain in identifying financial and other incentives. Currently faculty participation in cross-school center proposals does not always result in equitable financial and administration (F&A) cost reimbursement to the participating schools, and this challenge remains as the approval of the new policy on F&A sharing for such collaborations has been put on hold. Tufts practices on how nonfederal and interdisciplinary and collaborative research factors into faculty tenure and promotion evaluations are being reviewed by the Provost's office. (RBF recommendation: Improve recognition of grants and contracts, without federal levels of F&A, and identify ways that they can be supported at Tufts)

## Growing Awareness and Communication

### *Successes*

- **Tufts Tech Transfer hosted its inaugural Inventor Recognition Event.** On October 18<sup>th</sup>, 2019, OVPR hosted a luncheon to honor faculty who had a first-in-family U.S. patent issued in fiscal year 2019 and faculty whose intellectual property was licensed or optioned to a commercial entity in fiscal year 2019. Vice Provost for Research Caroline Genco presented awards to the 20 honorees to celebrate their innovative and entrepreneurial spirit. In attendance were deans, department chairs, and Tech Transfer staff. A similar (virtual) event is planned for 2020, celebrating 21 Tufts inventors. (RBF recommendation: Inventor Recognition Event)
- **Raising profile of Tufts research strengths to internal and external audiences.** The new OVPR website can accommodate ongoing announcements related to research activities. The website redesign allows the OVPR to highlight research projects and faculty profiles. In addition, the OVPR increased its collaborative efforts with Tufts Now resulting in more frequent stories related to research. In addition, the OVPR has convened a committee to develop a routine process for circulating information about research successes co-chaired by Kara Charmanski and James Walsh (University Controller). (RBF recommendation: Monthly Electronic Research Digest)

- **Tufts Technology Services developed a search engine that aggregates data around faculty productivity.** This tool augments the Faculty Information System (FIS) and creates a more robust database of faculty expertise as part of building a centralized research portal per RBF recommendations. At this time, the Centralized Research Portal (now called "[Find a Collaborator](#)") remains linked to a searchable database of Tufts public faculty profiles. Art and Sciences faculty are expected to be input by the end of the calendar year and would be available in the public profiles shortly thereafter. (RBF recommendation: Centralized Research Portal)