

SDM Posts Record Research Performance in FY 2021

Fiscal Year 2021 has been an eventful year for the School of Dental Medicine. We would like to acknowledge the hard work of our faculty, trainees and staff who have persevered throughout a pandemic. Their efforts have resulted in our best research performance to date:

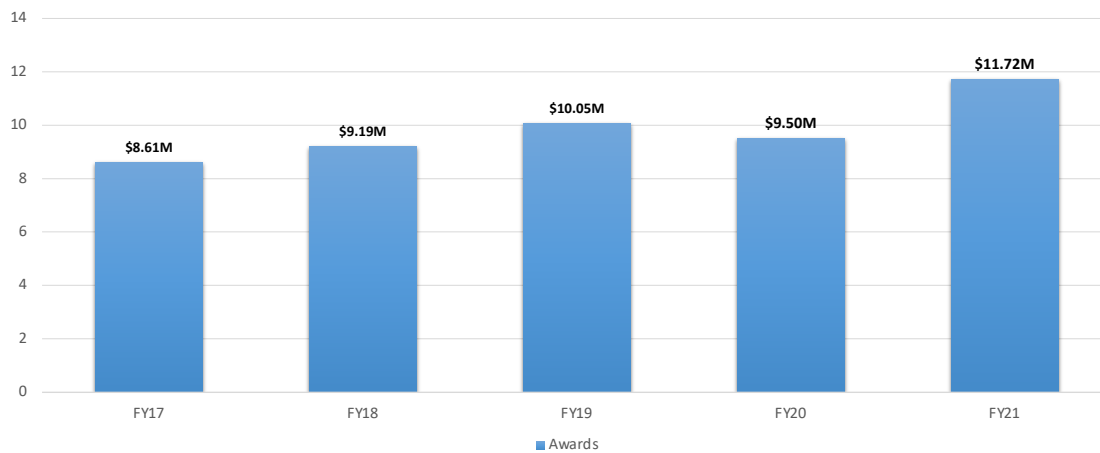
- Total extramural research funding received by the SDM for FY 21 was \$11.72M. This is up over \$2M (23% increase) from last year (FY20 - \$9.5M) and up over \$3M (36% increase) over the last 5 years (FY17 - \$8.61M).
- The SDM is now ranked 8th of all 68 accredited US Dental Schools, based on total direct funding from NIH for FY20. This is based on the most-recent ranking which was released in FY21. This is our highest ever ranking for total NIH funding and is not adjusted for school size.
- In both FY20 and FY21, the number of invention disclosures received and patents filed from the SDM are 3-4 times the numbers for each of the previous 4 years.
- The number of extramural grant submissions from the SDM has more than doubled over the last few years (from 46 in FY17 to 97 in FY20 to 94 in FY21).
- Centralization of pre-and post-award services in the SDM Research Office has been successfully completed with very positive written faculty feedback. In May 2021, the staff of the SDM Research Office received the UConn Health PAWS TEAM award from Dr. Andy.
- In FY21, we added additional research support for the SDM community including scientific editing support and statistical support, with very positive feedback thus far.

In this Issue:

- 4 Commercialization Activity
- 5 SDM Summer Research
- 6 IADR/AADR 2021 Presenters
- 7 Faculty and Trainee Recognition
- 9 New Grant Awards Received in FY21
- 11 Research Resources
- 14 Research Dean's Corner

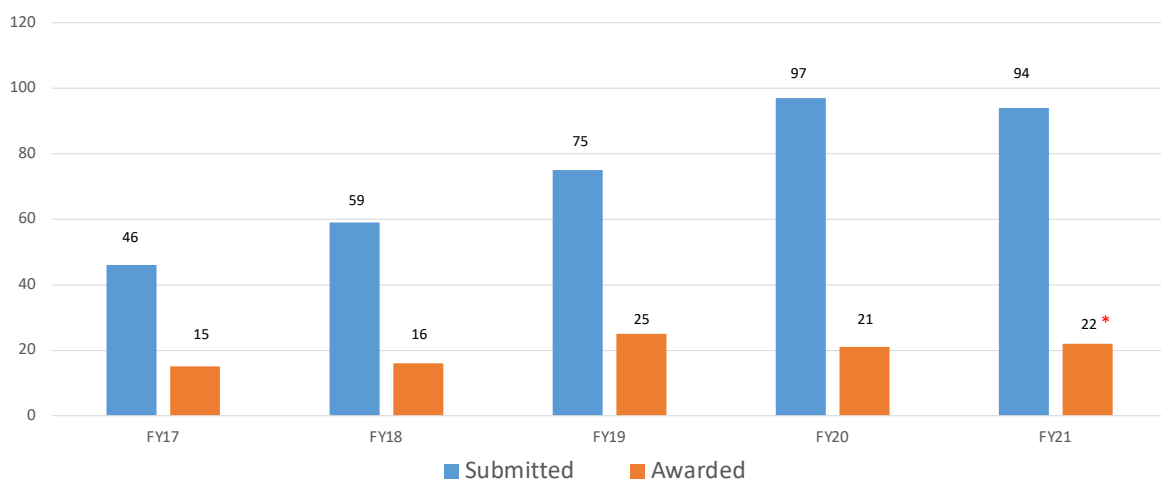


Total Research Funding to the School of Dental Medicine



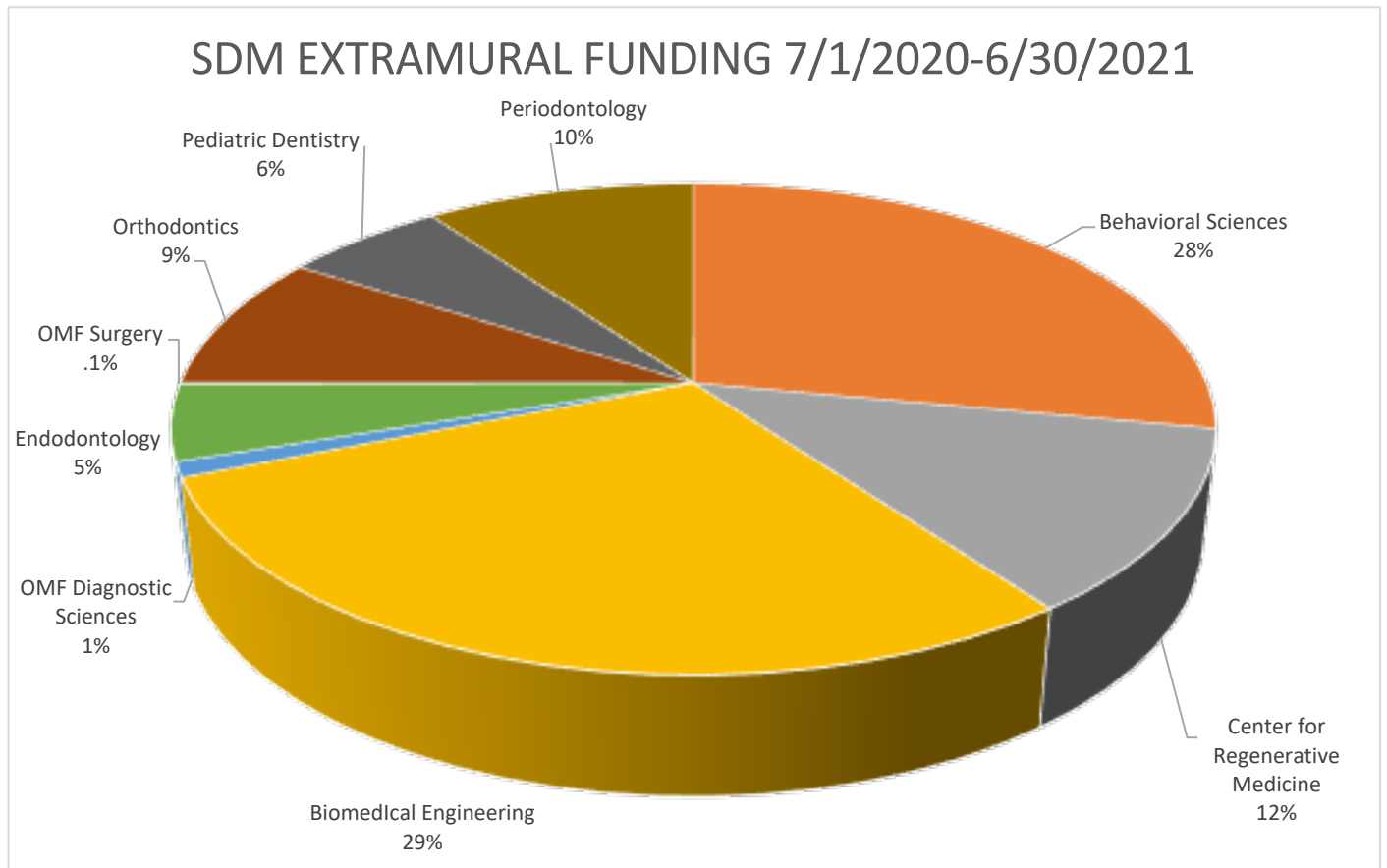
Graph represents total costs awarded for use in a particular fiscal year.

Number of Extramural Grant Submissions and Awards



Graph shows how many of the grants applied for in each fiscal year were awarded, including in a future fiscal year.

*To date. Grants submitted in one fiscal year are often awarded in the next fiscal year.



SDM Division / Unit	Direct Costs Received in FY 21	Indirect Costs Received in FY 21	Total Grant Awards for FY21
Behavioral Sciences and Community Health	2,330,199	985,332	3,315,531
Biomedical Engineering	2,414,729	975,111	3,389,840
Center for Regenerative Medicine and Skeletal Development	948,219	456,376	1,404,595
Endodontology	411,326	190,638	601,964
Oral and Maxillofacial Diagnostic Sciences	86,033	48,914	134,947
Oral and Maxillofacial Surgery	11,201	2,800	14,001
Orthodontics	979,106	96,328	1,075,434
Pediatric Dentistry	641,617	37,869	679,486
Periodontology	696,528	404,827	1,101,355
TOTALS	8,518,958	3,198,195	11,717,153

SDM Technology Commercialization Activity Report

	FY16	FY17	FY18	FY19	FY20	FY21
Invention Disclosures Received	2	2	2	3	11	14
Patent Applications Filed	2	0	1	1	5	20

An Invention Disclosure is the inventor(s) disclosing to the University that their work has led to an advance that may be a novel invention. In each of FY20 and FY21, the number of invention disclosures filed by SDM faculty were 3-4 fold higher than in previous years.

The University reviews all Invention Disclosures received and files patent applications on those that are most promising for commercial application. In FY21, a record-breaking 20 patent applications were filed on behalf of SDM faculty, which is a 4 fold increase from FY20.

SDM Faculty associated with patent applications filed in FY21

Dr. Changchun Liu: 6 patent applications

Dr. Ali Tamayol: 6 patent applications

Dr. Liisa Kuhn: 2 patent applications

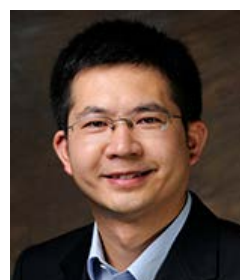
Dr. Tannin Schmidt: 2 patent applications

Dr. Kshitiz Gupta and Dr. Madhur Upadhyay: 1 patent application

Dr. Sumit Yadav and Dr. Po-Jung Chen: 1 patent application

Dr. Ivo Kalajzic: 1 patent application

Dr. Rajesh Lalla: 1 patent application



Dr. Changchun Liu



Dr. Ali Tamayol

SDM Summer Research Program (Dr. Aditya Tadinada-Director of Student Research)

We would like to acknowledge the 23 dental students and their mentors who have participated in the SDM Summer Research Fellowship program in Summer, 2021. We look forward to their research presentations this winter during the annual SDM Student Research Day event.

Sergio Acevedo Cortes – Dr. Liisa Kuhn

Lucero Barrantes – Dr. Aditya Tadinada

Jane Conway – Dr. Aditya Tadinada

Jay Dalal – Dr. Alix Deymier

Max Einbinder – Dr. Aniuska Tobin

Arvene Golbazi – Dr. Eliane Dutra

Nathalia Hernandez – Dr. Aditya Tadinada

Ryan Higgins – Dr. Peter Setlow

Tudor Ilies – Dr. Tannin Schmidt

Kolbe Laing – Dr. Christy Lottinger

Julia Mainelli – Dr. Foteini Touloumi

Mishil Nana – Dr. Wendy Mok

Ryan Oleynik – Dr. Tannin Schmidt

Katherine Peccerillo – Dr. Alix Deymier

Anthony Perez-Pino – Dr. Seema Kurup

Hamza Qadri – Dr. Christy Lottinger

Stephanie Quezada – Dr. Stacey Brown

Maayan Schmidt – Dr. Madhur Upadhyay

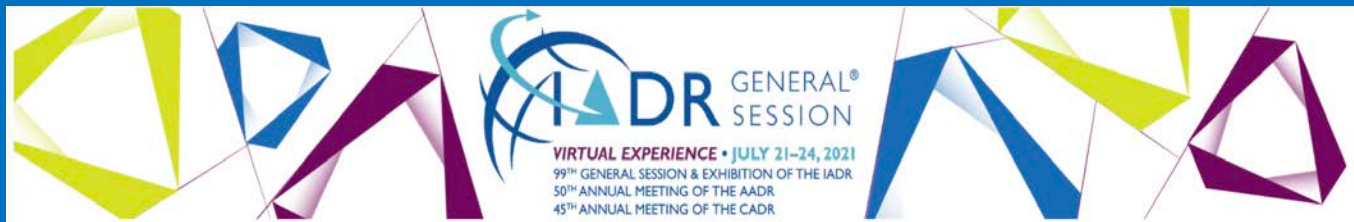
Samantha Sheppard – Dr. Easwar Natarajan

Utsav Sheth – Dr. Aditya Tadinada

Jacob Shlaferman – Dr. Liisa Kuhn

Caroline Thomas – Dr. Aditya Tadinada

Lindsay Witt – Dr. Frank Nichols



We would like to acknowledge the faculty, residents and students who presented at the virtual IADR/ AADR/ CADR General Session meeting held July 21 – 24, 2021:

Faculty:

Dr. Eric Bernstein

Dr. Eliane Dutra

Dr. Effie Ioannidou

Dr. Mina Mina

Dr. Ali Tamayol

Residents:

Dr. Ahmad Ahmida (Dr. Yadav)

Dr. Sara Abu Arqub (Dr. Yadav)

Dr. Nyle Blanck (Dr. Uribe)

Dr. Rebecca Dresner (Dr. Yadav)

Dr. Rebecca Voldman Mazur (Dr. Upadhyay)

Dr. Ravish Sharma (Dr. Yadav)

Dr. Ke Wang (Dr. Yadav)

Students:

Brett Bracco (Dr. Chatah)

Patricia Hare (SCADA presenter) / (Dr. Mok)

Breanna Irizarry (Dr. Tadinada)

Anna Kimberly (Dr. Lottinger)

Michaela Matos (Dr. Gordon)

John Nelson (Dr. Tadinada)

Natasha Patel (Dr. Yadav)

Basant Sallam (Dr. Arteaga)

Caroline Wilson (Dr. Freilich)

Emma Wentworth Winchester (Dr. Cotney)

Julia Witt (Dr. Yadav)

Faculty Recognition



Congratulations to Dr. Eliane Dutra, recipient of the American Society of Bone and Mineral Research (ASBMR) 2021 Rising Star Award. This award provides funding to scientists in the bone field who have already been recognized by NIH “K Awards” and other similar international professional development programs.



Congratulations to Dr. Alix Deymier, recipient of the National Science Foundation Faculty Early Career Development Award (CAREER).



Dr. Caroline Dealy’s role as a research mentor for undergraduate students in the Health Research Program was recognized in a recent video on UConn Today: <https://today.uconn.edu/2021/08/a-wonderful-infusion-of-energy-undergrads-get-firsthand-research-experience-at-uconn-health/>



UConn Today recently published an article on Dr. Changchun Liu’s collaboration on a way to enhance the protective qualities of N95 respirators: <https://today.uconn.edu/2021/09/uconn-health-researcher-focuses-on-enhanced-n95-mask-protection/>



Congratulations to Dr. Ali Tamayol on a recent article in UConn Today which highlighted the startup “InPrint Bio” which offers reconstructive breakthrough after breast surgery: <https://today.uconn.edu/2021/10/startup-inprint-bio-offers-reconstructive-breakthrough-after-breast-surgery/#>

Trainee Recognition



Congratulations to Dr. Ke Wang (mentor Dr. Yadav), recipient of the 2021 Resident Research Program Award from the Northeastern Society of Orthodontists.

Congratulations to Dr. Ke Wang, (mentor Dr. Yadav) who presented the winning research project for the Orthodontics Research Group at the AADR 2021 Growth and Development Research Award Competition.



Congratulations to Dr. Mohamadmahdi Samandari, (mentor Dr. Tamayol), who recently received grant funding from the Good Food Institute in a new area of artificial meat production through bioprinting.



Congratulations to Emma Wentworth Winchester, (mentor Dr. Cotney), recipient of the NIH F30 fellowship award.

Emma Wentworth Winchester (mentor Dr. Cotney), recently received the award for Best Lightning Talk at the 2021 Annual UConn Institute of Systems Genomics Networking Event for her role on cell-type specific regulatory regions in orofacial clefting and normal craniofacial variation.



Congratulations to Dr. Shivam Mehta (mentor Dr. Yadav), who placed first at the Association of Orthodontists (Singapore) Congress poster competition held in July.



Have you received a recent award, accomplishment or have some interesting news to share with the SDM Research Community? Please forward your news to Lisa Ramsdell (ramsdell@uchc.edu) so it may be included in our next newsletter!

New Grant Awards Received in FY21 (7/1/2020-6/30/2021)

Congratulations to the following SDM faculty on receiving new grant awards in FY21:

NIH

Dr. Robert Aseltine - Developing Suicide Risk Algorithms for Diverse Clinical Settings Using Data Fusion (R01)

Dr. Robert Aseltine - Improving the Identification and Management of Suicide Risk Among Patients Using Prescription Opioids (Supplement)

Dr. Jessica Costa – Treatment of parathyroid neoplasia by pharmacologic cdk4/6 inhibition (R03)

Dr. Anna Dongari-Bagtzoglou - Oral Epithelial Cells, Candida and PMN Activation (R01)

Dr. Liisa Kuhn - Modulated release of anti-senescence drugs to stimulate aged bone repair (R01)

Dr. Changchun Liu - Self-Powered Sample Concentrating and CRISPR-based Biosensing for Mobile HIV-1 RNA Detection (R61)

Dr. David Rowe, MPI Dr. Peter Maye - High resolution 3D mapping of cellular heterogeneity within multiple types of mineralized tissues (U54)

Dr. Sumit Yadav - Mechanism of BMP2 regulation of Mandibular Condylar Cartilage Growth (Supplement)

Dr. Sumit Yadav – Role of Cellular Senescence in Alleviating TMJ Degeneration (R03)

NIH Passthrough

Dr. Robert Aseltine – Improving Suicide Prediction Using NLP-Derived Social Determinants of Health (R01)

Dr. Changchun Liu – Using Human Skin Grafted Mice to Identify Biomarkers of Exposure and Study Effects of Radiation on Skin (U01)

NSF

Dr. Alix Deymier - A New Science of Skeletal and Physiological Systems: using integrated approaches to elucidate mineralized tissue properties and behavior (CAREER)

American Association of Orthodontists

Dr. Po-Jung Chen - Biomechanics of Cantilever Springs for Anchorage Reinforcement: A Three-dimensional Analysis

Dr. Eliane Dutra - FGFR3 signaling in mediating the effects of PTH on TMJ chondrocytes

Dr. Shivam Mehta - Effects of Alendronate Treatment on the Rate of Orthodontic Tooth Movement in Osteogenesis Imperfecta

Dr. Sumit Yadav - Role of Cellular Senescence in Alleviating TMJ Degeneration

Beekley Family Foundation, Inc.

Dr. Liisa Kuhn- Biosymmetrix Project

Charles J. Burstone Foundation

Dr. Flavio Uribe – Charles J. Burstone Center of Excellence for Research and Education

CT Breast Health Initiative

Dr. Liisa Kuhn - Personalized 3D Printed Breast Forms

Novartis

Dr. Tannin Schmidt - rhPRG4 Human Ocular Cell Work

Dr. Tannin Schmidt – Capsaicin Stimulation of Human Corneal Epithelial Cells

Intramural Awards

Dr. Kshitiz Gupta – Investigating Scar Induced Dysregulation of Endometrial Resistance in Placenta Accreta (Research Excellence Program)

Dr. Ivo Kalajzic – Cellular Therapy for Osteoarthritis (Research Excellence Program)

Dr. Liisa Kuhn – Layer-by-Layer Janus base Nano-Matrix for Growth Plate Regeneration (Research Excellence Program)

Dr. Frank Nichols – A novel periodontal bacterial lipid, Lipid 1256, mediates bone loss through promotion of osteoclast activity (Research Excellence Program)

Dr. Ernst Reichenberger - 3D skin model from hiPSC-derived fibroblasts and keratinocytes with keloid mutations (Research Excellence Program)

Dr. Madhur Upadhyay – Deep learning (Mask R-CNN) for organization of Diagnostic Records in Orthodontics (START Preliminary Proof of Concept Fund)

Research Resources

Students, residents, postdoctoral trainees and faculty at the UConn School of Dental Medicine (SDM) have access to a wide range of research resources through the School, UConn Health, and UConn Storrs campus.



Proposal Development Services

The SDM research community can access scientific editing and other proposal development services through arrangements at the School and University level. For scientific editing support, please contact Laura Didden at ldidden@uchc.edu. For proposal development services and proofreading services offered through the Office of the Vice-President for Research (OVRP), please see <https://ovpr.uconn.edu/services/research-development/services/>

Grantwriting Training and Resources

Periodic training on grantwriting for various types of grants is offered by the OVRP. For details, please see: <https://ovpr.uconn.edu/services/research-development/grantwriting/>

Statistical Support

For statistical support for dental residents in Master's degree programs, please contact Dr. Chia-Ling Kuo at kuo@uchc.edu

For all other statistical support needs for SDM students, residents, and faculty, assistance is available through the UConn Statistical Consulting Services, through one of the following options:

1. Free Walk-In (Virtual): For quick questions about statistical issues that can be handled in a 20 minute consulting session. <https://statsconsulting.uconn.edu/walk-in-schedule/>
2. Free Ask Online: Alternatively, you can submit questions online using the submission form at the link below: <https://statsconsulting.uconn.edu/ask-online-sdm/>
3. Fully Supported Project Engagement: If more in-depth assistance is needed, it will be supported by the SDM, if there is no funding available for the project. Please complete the form at the link below to request such assistance: <https://statsconsulting.uconn.edu/project-engagement-sdm/>

For any questions about support through UConn Statistical Consulting Services, please contact Dr. Timothy Moore at timothy.e.moore@uconn.edu

Internal Funding Opportunities

A variety of internal funding opportunities are open to SDM faculty including the Research Excellence Program, Convergence Awards for Research in Interdisciplinary Centers (CARIC) and the SPARK Technology Commercialization Fund. For details and deadlines, please see: <https://ovpr.uchc.edu/services/research-development/funding/>

Core Facilities

To see all the Core Facilities available to the SDM Research community, please visit <https://core.uconn.edu/resources>. This page allows you to choose to see all the Core resources at UConn Health, as well as at the Storrs and Avery Point campuses.

Sample Language describing UCH Core Facilities

<https://medicine.uconn.edu/research/core-facilities/>

Health Center Research Advisory Council (HCRAC) programs

- Research Equipment support (includes repair/replacement support and new capital equipment support)
- Emergency Grant Program
- Exploratory Project Transition Award
- Travel Grants for Graduate Students and Postdoctoral Fellows

For information on the above programs, please see the HCRAC website at:

<https://ovpr.uchc.edu/services/research-development/research-advisory-groups/hcrac/>

Lincus

Looking for collaborators at UConn? Try Lincus, which tells you which faculty at UConn are working on topics of interest to you. Log in with your UConn Net ID at <https://lincus.uconn.edu/lincus/cas/landing>

Technology Commercialization Services (TCS)

TCS helps the UConn research community move their research towards practical application. For details, please see <https://innovation.uconn.edu/>

Additional Information

For more information and resources, please see <https://ovpr.uchc.edu/>

[Library Announces New PDF Finding Tool](#)

Find Article PDFs Faster with LibKey Nomad

What is LibKey Nomad?

Nomad is a browser extension that links up the library's journal subscriptions with popular databases like PubMed, Scopus, Wikipedia, and more.

What does it do for you?

Nomad enables you to easily get the PDFs of articles you need with fewer clicks. For example, [it provides a link to download the pdf directly in your PubMed search results.](#)

How do you install and use it?

Watch the [library tutorial](#) to learn how to add Nomad to your browser. It's quick, easy, and free! The tutorial demonstrates how Nomad works in a PubMed search.

Want to know more?

- Read the [LibKey Nomad user guide](#)
- Email a reference librarian: ref@uchc.edu



Mark Your Calendars
UPCOMING EVENTS

Medical / Dental Student Research Day is set for Wednesday, February 23, 2022

Please mark your calendars to support our dental students at this annual event! (Event location and time will be announced at a later date.)

Research Dean's Corner

Dear Colleagues,

In this issue of the SDM Research Newsletter, we provide you with detailed objective data on our School's research program for Fiscal Year 2021 (FY21). As summarized on the first page and documented in the data that follows, we have had an outstanding year with significant growth in research activity as well as in activities related to technology commercialization during FY21.

I am happy to share one additional piece of data that bodes well for our research funding for the next few years. When one looks at the total amount of new grants received for all years of the grant, our School received \$13.4M in new grants in FY21. This is a 36% increase compared to FY20 (\$9.8M) and a spectacular 168% increase compared to 5 years ago (FY16 - \$5.0M)!

This growth in our research programs will lead to increased generation of new knowledge to benefit humanity, as well as increased research training opportunities. In FY21, SDM faculty published at least 109 discrete peer-reviewed publications indexed in PubMed, many of them co-authored with research trainees (publications involving multiple SDM faculty were counted only once). Also recognized in this issue are the 23 dental students who participated in our summer research program this past summer and their mentors.

It is indeed note-worthy and commendable that this high level of research activity and scholarly productivity is happening despite the continuing pandemic and its effects. My sincere thanks and congratulations to all of our faculty, trainees, and staff who are involved in the conduct and support of research, both directly and indirectly.

Sincerely,

Rajesh V. Lalla, DDS, PhD
Associate Dean for Research



SDM Research Office

263 Farmington Avenue

Farmington, CT 06030-3912

Dr. Rajesh Lalla - Associate Dean for Research

Dr. Aditya Tadinada - Associate Dean for Graduate Research, Education & Training

Dr. Effie Ioannidou - Director, Dental Clinical Research Center

Office Staff:

Laura Didden - Manager, SDM Research Office

Annmarie Martin, Brandon Mulcunry, Lisa Ramsdell,

Kamal Sahoobah, Robin Tiso and Caibin Zhang