



2024
State of
RESEARCH
Address

Thomas Flaig, MD

Vice Chancellor for Research
University of Colorado Anschutz Medical Campus

December 10, 2024

2024 STATE OF RESEARCH ADDRESS

Agenda

- Top Challenges in Biomedical Research
- Office of the Vice Chancellor for Research Overview
- Funding Snapshot and Key Research Metrics
- Campus Research Highlights
- Partnerships and Community Engagement
- Looking to the Future
- Q&A

Online participants: Feel free to submit questions throughout the presentation!



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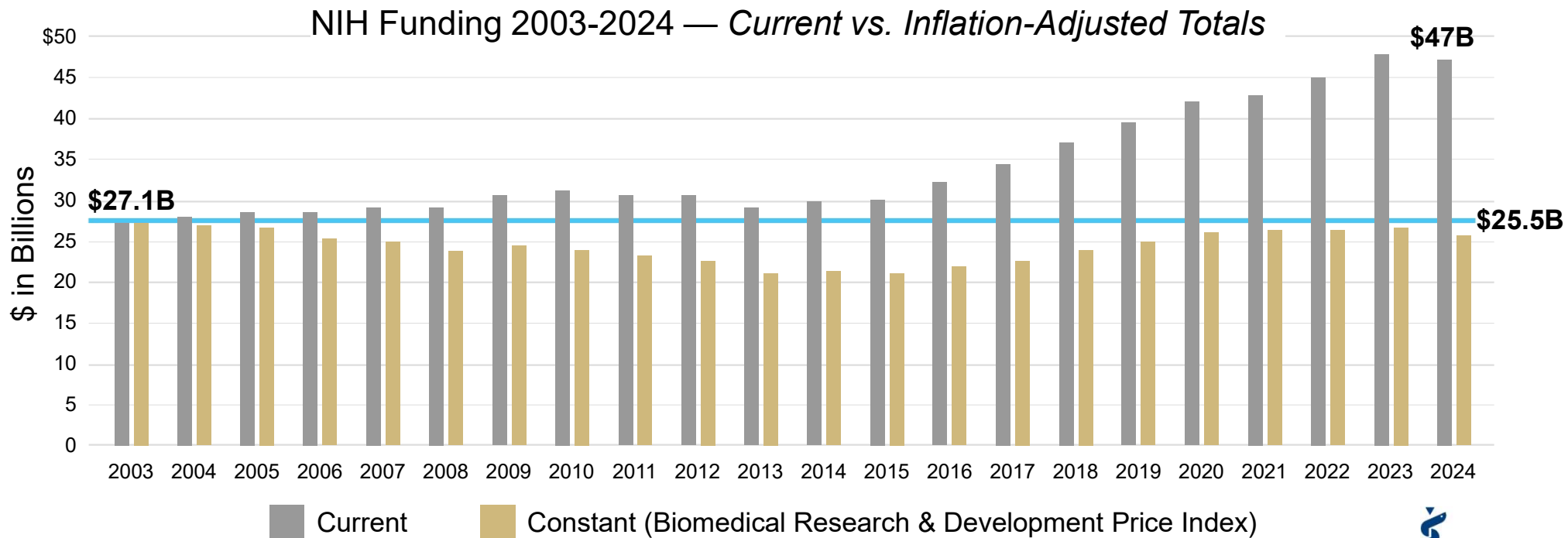


RESEARCH TRENDS AND CHALLENGES



CHALLENGE #1

When adjusted for inflation, federal funding has remained flat in recent decades.



Sources: NIH Office of Budget; White House Office of Management and Budget; P.L. 118-47. Updated 4/02/24.

Note: Funding levels do not include emergency supplemental funding.



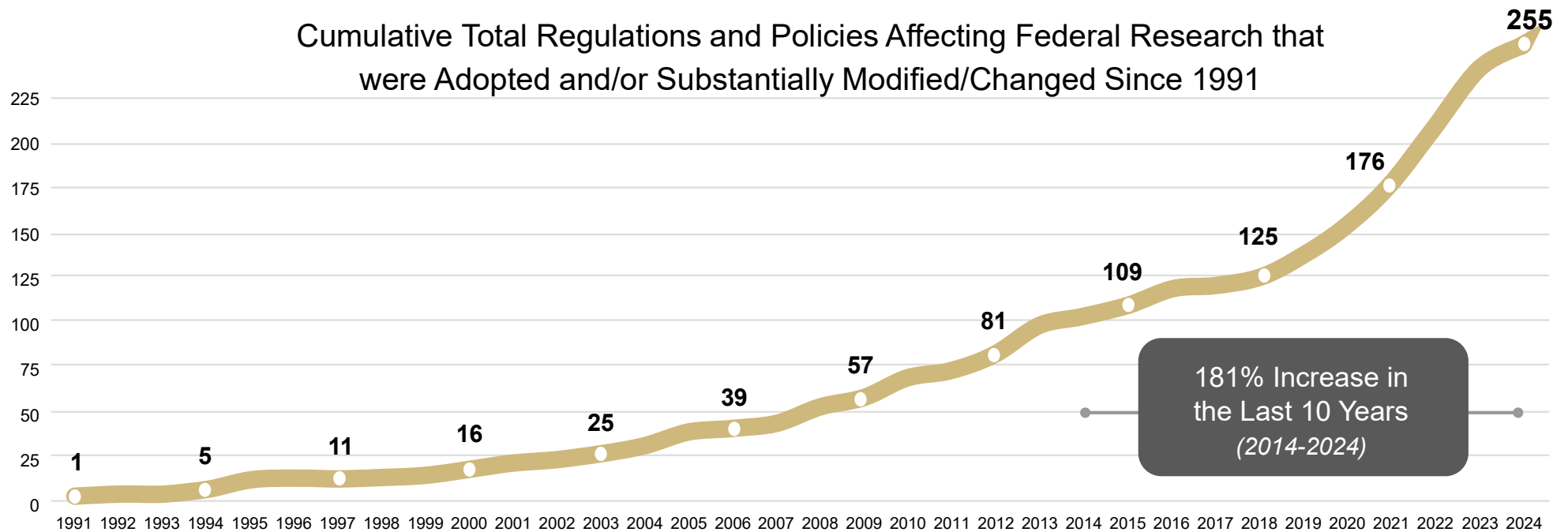
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CHALLENGE #2

The research regulatory landscape has become increasingly complex and difficult to navigate.



Source: <https://www.cogr.edu/cogr-list-regulatory-changes-1991-0>

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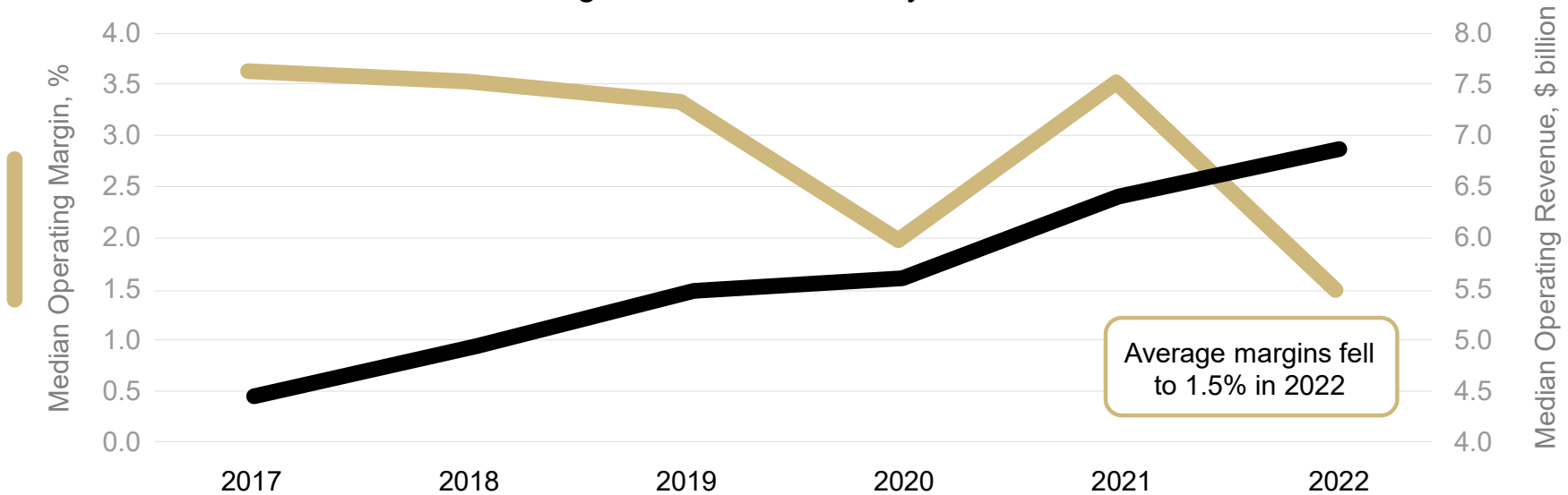
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CHALLENGE #3

Academic medical centers' already-thin operating margins are declining, creating challenges to financial sustainability and research missions

Median Operating Margin and Revenue for
45 Leading Academic Health Systems, 2017-2022



Source: <https://www.mckinsey.com/industries/healthcare/our-insights/ensuring-the-financial-sustainability-of-academic-medical-centers>

McKinsey
& Company



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TOP THREE CHALLENGES FACING BIOMEDICAL RESEARCH

1. **Funding:** Researchers face uncertainty in federal budgets and flat NIH funding (when adjusted for inflation).
2. **Regulations:** The regulatory landscape is increasingly complex and time-intensive to effectively navigate.
3. **Revenue:** Academic medical centers face higher costs and slimmer operating margins, which can undermine clinical research missions.





KEY RESEARCH METRICS



FY24 CU ANSCHUTZ RESEARCH HIGHLIGHTS

1.8K+

**Principal
Investigators
with Active Awards**

3.8K

**Active Clinical
Trials on Campus**

14K+

**People Enrolled
in Research
Studies**

800K

**Square Feet of
Laboratory Space**

3.4K

**Research Proposals
and Contracts
Submitted**

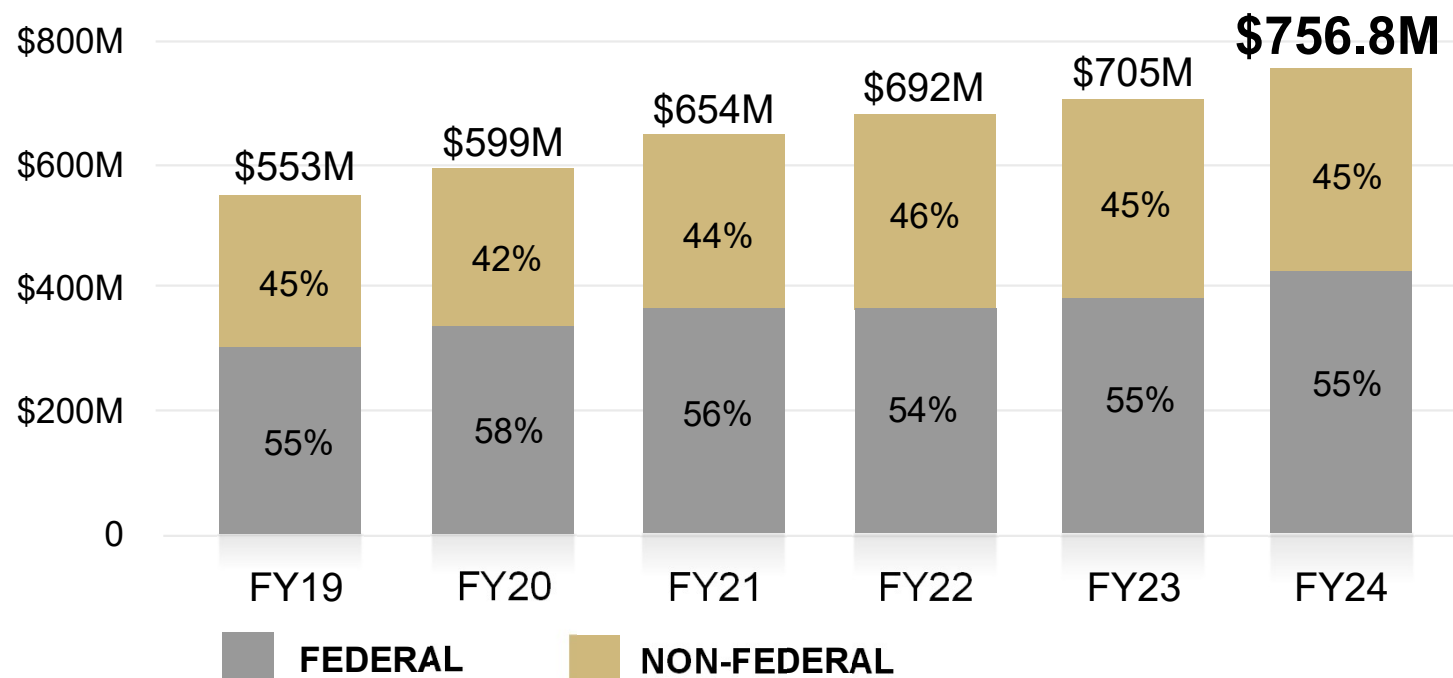


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SPONSORED RESEARCH FUNDING



7%
increase since
last year

37%
increase
since FY19

3,058
individual awards



In addition, CU Anschutz received \$153M in philanthropic gifts supporting research in FY24



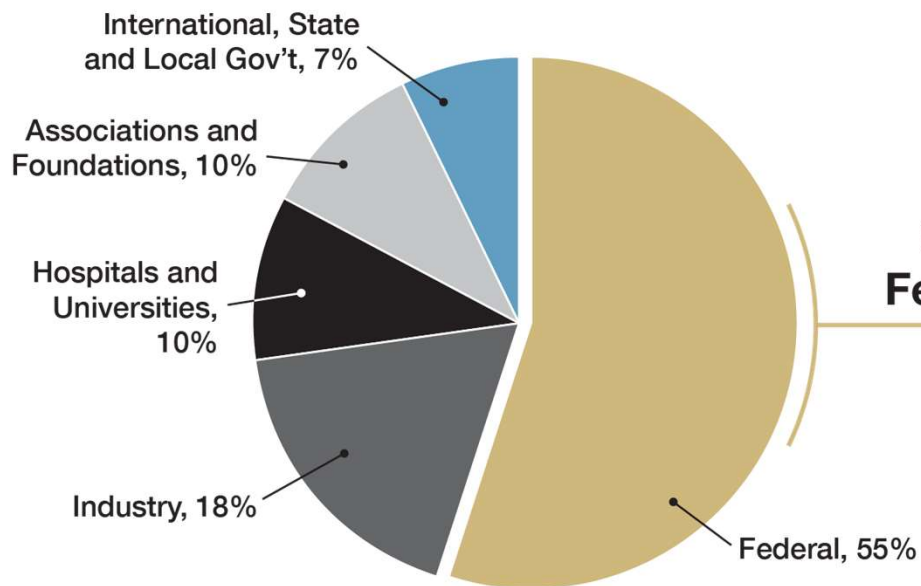
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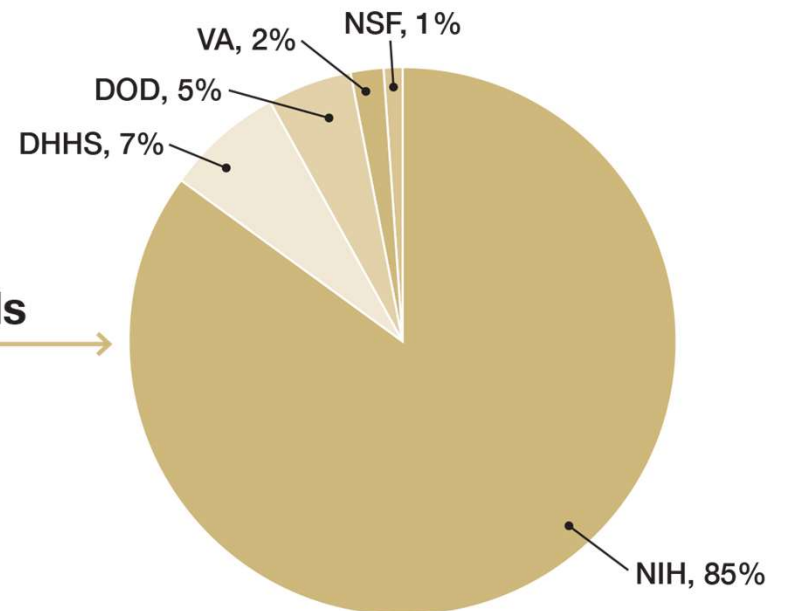
FY24 SPONSORED RESEARCH AWARDS BY TYPE

\$756.8M Total



**\$420.4M in
Federal Funds**

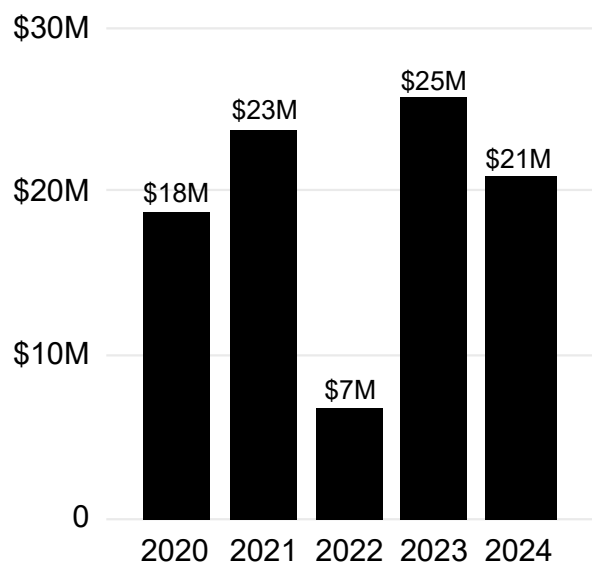
**FY24 Federal
Fund Breakdown**



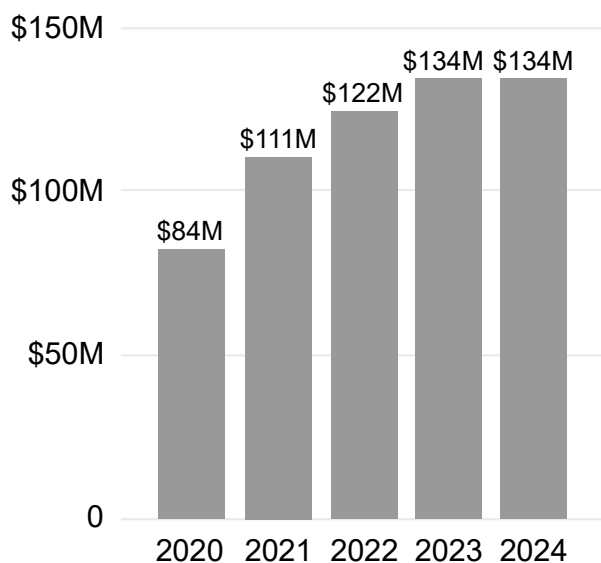


RECENT TRENDS IN FUNDING SOURCES

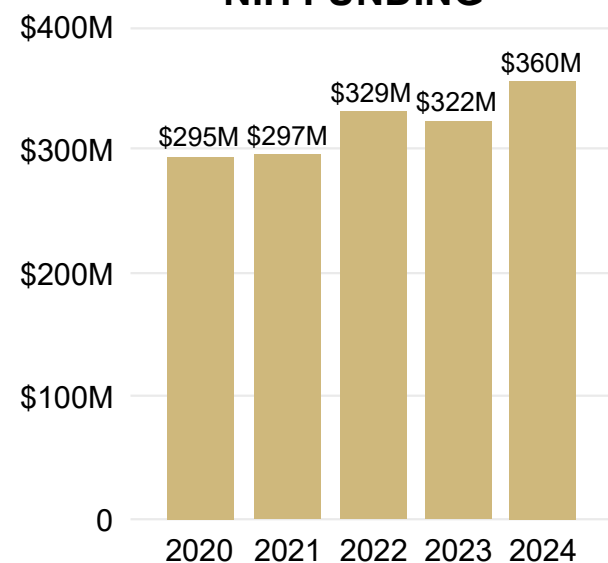
**CU ANSCHUTZ
DoD FUNDING**



**CU ANSCHUTZ
INDUSTRY FUNDING**



**CU ANSCHUTZ
NIH FUNDING**





DIVERSIFYING OUR FUNDING, FACILITATING TEAM SCIENCE

Up to \$68M in federal funds awarded to the CU Anschutz funding portfolio from the Advanced Research Projects Agency for Health (ARPA-H)



Michael Zuscik and Karin Payne*

Award to study tissue regeneration
to treat osteoarthritis

***AB Nexus awardees**



Matthew Wynia and Eric Campbell

Award to develop ingestible devices to
treat conditions like diabetes



Christene Huang and Kia Washington

Prime award to advance blindness
cures through eye transplantation



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OFFICE OF THE VICE CHANCELLOR FOR RESEARCH

Your Partners in Scientific Discovery



OFFICE OF THE VICE CHANCELLOR FOR RESEARCH (OVCR)

MISSION STATEMENT

Our reason to be

Committed to a **diverse, team-based culture**, we engage and collaborate with the research community to provide **expertise, support and guidance** for the advancement of science.

VISION STATEMENT

Where we want to go

Together, we make tomorrow's research happen.



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OVCR LEADERSHIP TEAM

Thomas Flaig, MD
Vice Chancellor for Research
CU Anschutz Medical Campus



Terri Carrothers
Executive Vice Chancellor for
Administration and Finance | CFO
CU Anschutz



Lori Sussel, PhD
Associate Vice Chancellor
Basic Science



**Jori Leszczynski,
DVM, DACLAM**
Assistant Vice Chancellor
*Laboratory Animal
Resources*



**Ben Echaliier, MS,
MBA, CCRP**
Assistant Vice Chancellor
*Clinical Research
Operations*



**Laura Buccini,
DrPH, MPH, MA**
Assistant Vice Chancellor
*Research Development
and Strategy*



Ron Sokol, MD
Assistant Vice Chancellor
CCTSI



Alison Lakin, PhD
Associate Vice Chancellor
*Regulatory
Compliance*



Amy Gannon
Associate Vice Chancellor
*Grants and Contracts/
Fiscal Compliance*





HOW DOES THE OVCR SUPPORT RESEARCHERS?



Helping teams to navigate regulations, compliance, proposals, contracts, awards/funding, laboratory protocols and more through every step of the research lifecycle.



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HOW DOES OVCR SUPPORT RESEARCHERS?

Offering centralized resources, trainings, guidance and expertise to ensure safe, efficient and compliant research across campus.



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HOW DOES OVCR SUPPORT RESEARCHERS?

Analyzing the research funding landscape and developing strategies, partnerships and tools to help investigators secure extramural grants and awards.



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HOW DOES OVCR SUPPORT RESEARCHERS?



Developing outreach strategies to help investigators recruit people of all backgrounds into research studies.



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CLINICAL RESEARCH RECRUITMENT PROGRAM HIGHLIGHTS

85

Social media ad campaigns completed

100%

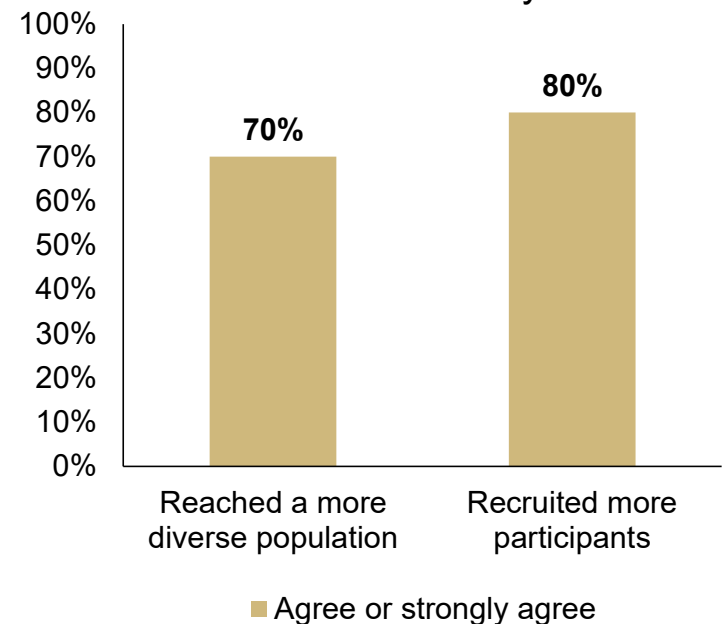
Research teams said quality of ads met or exceeded expectations

640

Registrants for quarterly recruitment workshops in 2024



How did social media help researchers with study recruitment?



Email researchstudies@cuanschutz.edu for more information



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COLORADO MULTIPLE INSTITUTIONAL REVIEW BOARD (COMIRB)

- COMIRB worked with the Institute for Healthcare Quality, Safety and Efficiency to reduce approval time and effort for researchers
- Partnered with CU Cancer Center and Barbara Davis Center
- **In 2024, COMIRB officially shortened its application length by 70%**
- Now applying learnings to other OVCR teams



John C. Heldens, CIP
Assistant Vice Chancellor for Human Research Protections
Office of Regulatory Compliance



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INVESTIGATIONAL NEW DRUG AND DEVICE OFFICE





OFFICE OF LABORATORY ANIMAL RESOURCES (OLAR)

HIGHLIGHTS

- **120,000** sq. feet of space
- **450%** capacity increase in test and behavior space since 2020
- **110** staff members, including six veterinarians
- **484** IACUC protocols

AAALAC full accreditation renewed this year



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CELEBRATING MARK DOUSE'S 31-YEAR CAREER AND UPCOMING RETIREMENT

Mark has been instrumental in developing our animal research compliance program

- Joined CU in 1993 and served as IACUC Director, Director of the Office of Laboratory Animal Resources and Director of the Office of Research Committee Support
- Oversaw the move to the Anschutz Medical Campus in 2004 and helped to lead subsequent expansions of vivarium space
- Established multiple research safety, ethics and compliance committees



Mark Douse, PhD
Director, Office of Research
Committee Support





COLORADO CLINICAL AND TRANSLATIONAL SCIENCES INSTITUTE (CCTSI)

New tools to increase efficiency for Clinical Translational Research Center (CTRC) investigators:

- **CTRC Study Startup Dashboard:**
Speeds study launch time by allowing users to visualize progress by all cores and create MD orders in one place.
- **CTRC User Guide:**
Details all the information needed to conduct a study at the CTRC, addressing loss of knowledge with staff turnover



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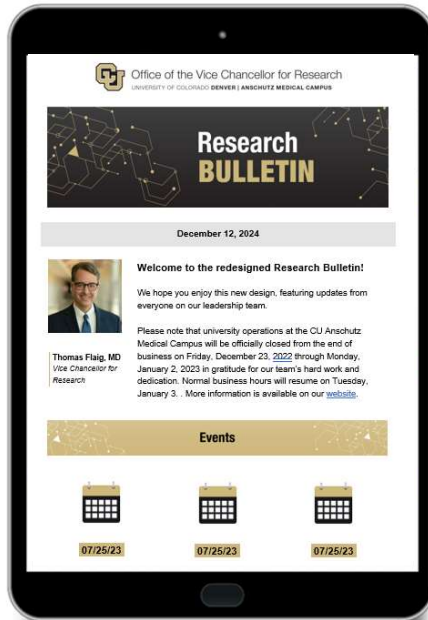
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STAYING CONNECTED TO THE OVCR: RESEARCH COMMUNICATIONS

Bimonthly Research Bulletin Enews

*News, events & updates from the Office
of the Vice Chancellor for Research*



Office of the Vice Chancellor for Research Website

*Your one-stop shop for
campus research resources*



Toulia Wellbrook

*New Research Communications
Director for the OVCR*

toulia.wellbrook@cuanschutz.edu



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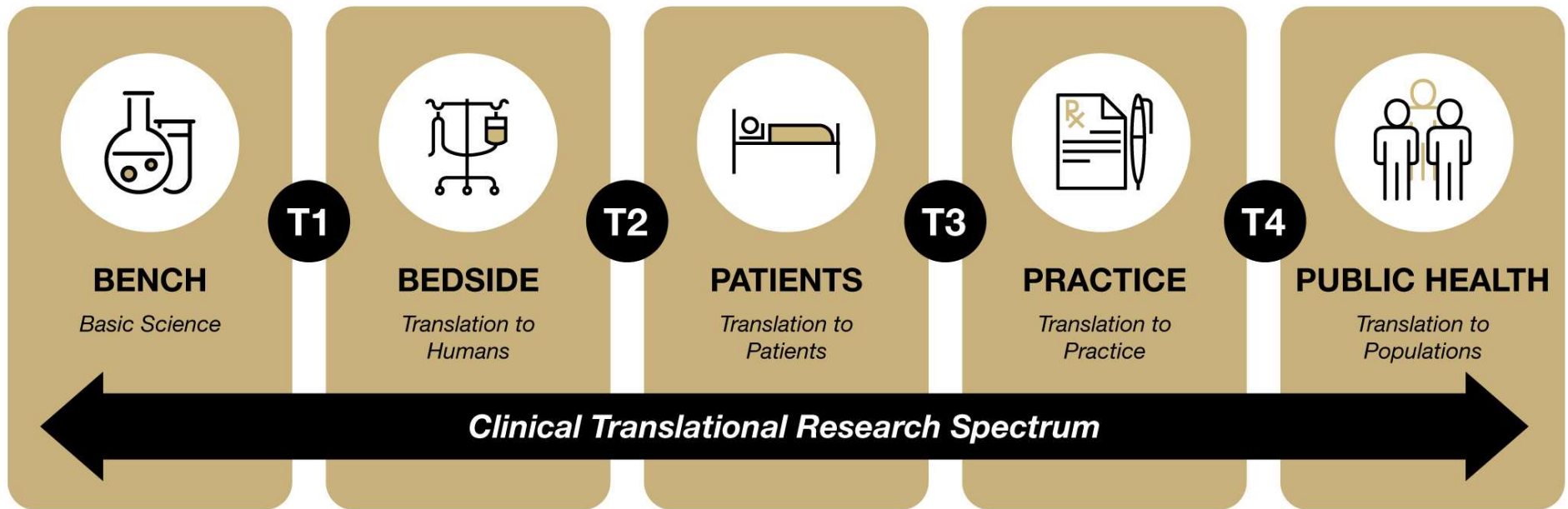
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A THRIVING RESEARCH COMMUNITY

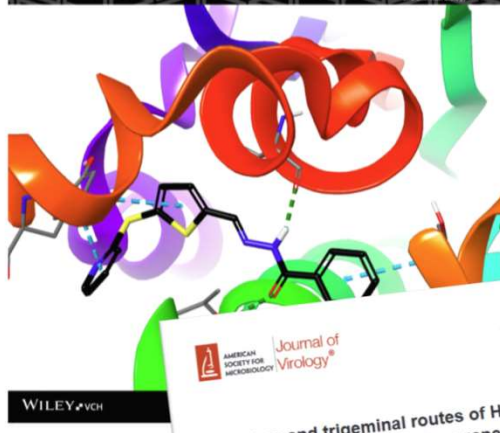
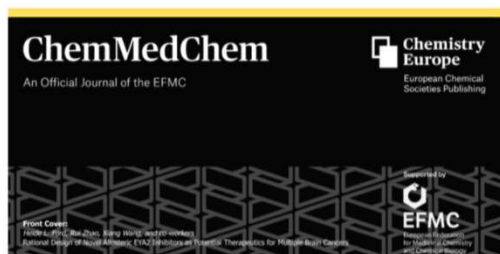


BENCH TO BEDSIDE AND BEYOND





TREMENDOUSLY PRODUCTIVE FACULTY



Journal of Virology® PATHOGENESIS AND IMMUNITY November 2024 Volume 98 Issue 11 e00965-24 <https://doi.org/10.1128/jvi.00965-24>

Olfactory and trigeminal routes of HSV-1 CNS infection with regional microglial heterogeneity
Christy S. Niemeyer¹, Laetitia Merle², Andrew N. Bubak¹, B. Dnate Baxter³, Arianna Gentile Polese², Katherine Colon-Reyes¹, Sandy Vang¹, James E. Hassell, Jr.⁵, Kimberley D. Bruce⁵, Maria A. Nagel^{1,6}, Diego Restrepo³
¹Department of Neurobiology, University of Colorado Anschutz Medical Campus, Aurora, Colorado, USA



nature communications

Article <https://doi.org/10.1038/s41467-024-49781-1>

Variegated overexpression of chromosome 21 genes reveals molecular and immune subtypes of Down syndrome

Received: 16 November 2023

Accepted: 18 June 2024

Published online: 28 June 2024

Micah G. Donovan^{1,5}, Neetha P. Eduthan^{1,5}, Keith P. Smith¹, Eleanor C. Britton¹, Hannah R. Lyford¹, Paula Araya¹, Ross E. Granath¹, Katherine A. Waugh^{1,2}, Belinda Enriquez Estrada¹, Angela L. Rachubinski^{1,2}, Kelly D. Sullivan^{1,4}, Matthew D. Galbraith^{1,2} & Joaquin M. Espinosa^{1,2}

JAMA Health Forum.

Original Investigation

A Machine Learning Method for Allocating Scarce COVID-19 Monoclonal Antibodies

Mengli Xiao, PhD, Kyle C. Molina, PharmD, Neil R. Aggarwal, MD, Laurel E. Beatty, MS, Tellen D. Bennett, MD, MS, Nichole E. Carlson, PhD, Lindsey E. Fish, MD, Mika K. Hamer, PhD, MPH, Bethany M. Kwan, PhD, MSPH, David A. Mayer, BS, Jennifer L. Peers, BS, Matthew K. Wyrna, MD, MPH, Adri A. Girke, MD, MPH

Abstract

IMPORTANCE During the COVID-19 pandemic, allocating scarce monoclonal antibodies became a crucial policy goal. Yet, limited machine learning techniques, such as random forest, have been used to allocate scarce therapeutics.

OBJECTIVE To evaluate whether a machine learning method for allocating scarce monoclonal antibodies during periods of resource constraint.

DESIGN, SETTING, AND PARTICIPANTS Record data from October 1, 2021, to June 1, 2021, to October 1, 2021, positive test results for SARS-CoV-2, and Drug Administration's emergency use authorization. Only data were analyzed between

HealthAffairs JOURNAL

PHARMACEUTICALS & MEDICAL TECHNOLOGY

By Kelly E. Anderson, Neetha P. Eduthan, Eric J. Gutierrez, H. Weston Schmutz, Michael R. Rose, Diana Brisaner, and R. Brett McQueen

State Out-Of-Pocket Caps On Insulin Costs: No Significant Increase In Claims Or Utilization

ABSTRACT Nearly all patients with type 1 diabetes and 20–30 percent of patients with type 2 diabetes use insulin to manage glycemic control. Approximately one-quarter of patients who use insulin report underuse because of cost. In response, more than twenty states have implemented monthly caps on insulin out-of-pocket spending, ranging from \$25 to \$100. Using a difference-in-differences approach, this study evaluated whether state-level caps on insulin out-of-pocket spending change insulin usage among commercially insured enrollees. The study included 33,134 people ages 18–64 who had type 1 diabetes or who used insulin to manage type 2 diabetes who had type 1 diabetes or who used insulin to manage type 2 diabetes subject to state-level oversight and was included in the 25 percent sample of the IQVIA PharMetrics database during 2018–21. Insulin out-of-pocket caps did not significantly increase quarterly insulin claims for enrollees who had type 1 diabetes or who used insulin to manage type 2 diabetes. State-level caps on insulin out-of-pocket spending for enrollees did not significantly increase insulin use; that may be in part because of out-of-pocket expenses being lower than cap amounts.

Kelly E. Anderson (kellye.anderson@anschutz.edu), University of Colorado Anschutz Medical Campus, Aurora, Colorado

Neetha P. Eduthan (neetha.eduthan@anschutz.edu), University of Utah, Salt Lake City, Utah

Eric J. Gutierrez, University of Colorado Anschutz Medical Campus

H. Weston Schmutz, University of Utah

Michael R. Rose, Johns Hopkins University, Baltimore, Maryland

Diana Brisaner, University of Utah

R. Brett McQueen, University of Colorado Anschutz Medical Campus



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CU ANSCHUTZ SCIENTISTS IN THE MEDIA



The New York Times



THE
WALL STREET
JOURNAL



The Washington Post

The gender gap in heart disease research,
treatment leaves women behind
October 20, 2024
7 min 225



214M

Print and
broadcast reach
to date in 2024

Do you have a story idea or upcoming publication?
Email media@cuanschutz.edu



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EXTERNAL AWARD HIGHLIGHTS



Katerina Kechris, PhD

\$7M

***Colorado School of Public Health
and CU School of Medicine***
*Five-year federal award supporting
a new Biostatistics Research Center
to better understand T2 diabetes*



Sujatha Jagannathan, PhD

\$1.2M

RNA Bioscience Initiative
*NSF grant led by Dr. Sujatha
Jagannathan to bring science/STEM
curriculum to local high schools*



Jed Lampe, PhD

\$6.2M

School of Pharmacy
*Two NIH R01 grants to support Dr.
Jed Lampe's research on antibiotic
effectiveness and drug toxicity*



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NEW DEAN NAMED FOR SCHOOL OF MEDICINE

“

By fostering and rewarding innovation and discovery, we will continue to strengthen our standing as a world-class research institution—one that not only advances groundbreaking discoveries but also translates them into real-world impact.”

– DR. SAMPSON



John H. Sampson, MD, PhD, MBA

Richard D. Krugman Endowed Chair
Vice Chancellor for Health Affairs
Dean, University of Colorado School of Medicine



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NEW CAMPUS RESEARCH LEADERS



Blake Hill, PhD

Named new Chair
of the Department of
Pharmaceutical Sciences



Deborah Parra-Medina, PhD, MPH

Named inaugural
Executive Director of the
Center for Health Equity at
CU Anschutz



Dana Dabelea, MD, PhD

Named new Associate
Dean for Research,
Colorado School of
Public Health



Jayashree Kalpathy-Cramer, PhD

Named Director of Health
Informatics, Colorado
Clinical and Translational
Sciences Institute (CCTSI)



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RESEARCH HONORS OF NOTE



***Winner of the U.S.
National Science
Foundation's 2024
Alan T. Waterman Award***

Katrina Claw, PhD
Associate Professor of
Biomedical Informatics
CU School of Medicine



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RESEARCH HONORS OF NOTE

Named to the National Academy of Medicine



Tracy Bale, PhD
Professor, Department of Psychiatry
CU School of Medicine

International Pharmaceutical Federation's Exceptional Leadership Award



Ralph Altieri, PhD
Dean and Professor
*CU Skaggs School of Pharmacy
and Pharmaceutical Sciences*

Elected a Fellow of the Royal Society of Medicine



David Bentley, PhD
Professor, RNA Bioscience Initiative
CU School of Medicine





CAMPUS NAMED A HISPANIC-SERVING INSTITUTION (HSI)



Proud to be among the
institutions granted this
designation by the U.S. Dept of
Education in 2024

HSI Advisory Committee
working with students, staff and
faculty to advance campus
equity and inclusion efforts

Latine Excellence Symposium
held in September 2024
with 100+ attendees.



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ANSCHUTZ ACCELERATION INITIATIVE

Thanks to a generous gift from The Anschutz Foundation, nine research projects are rapidly advancing new therapies and protocols to the forefront of patient care.



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School of Medicine
Top-Tier Research Institution
*Ranked among top 16 medical
schools nationwide*



**Skaggs School of
Pharmacy**

No. 15 in the Nation
Top 10% of all ranked programs

BEST

& WORLD REPORT
U.S. News
RANKINGS



College of Nursing

No. 19 in the Nation
*Among 650+ Bachelor of Science in
Nursing (BSN) programs*



**Colorado School of
Public Health**

No. 16 in the Nation
Moved up 19 spots in 15 years



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SCHOOL OF DENTAL MEDICINE

**Among the top dental
schools in the country for
NIH research funding**



**Distinguished School
2024-2027**



GRADUATE SCHOOL

29

***Faculty members
certified as research
mentorship
facilitators in 2024***



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CU INNOVATIONS



V. Michael Holers, MD

Director of Faculty Ventures, CU Innovations
and Smyth Professor of Rheumatology
Founder of Q32 Bio



Top 5 Innovation Hub

REACH/National Institute of Health (NIH)



Top 20 Technology Transfer Worldwide

Technology Transfer Office (TTO)



No. 4 on Nature's Index Innovation

Leading Academic Institutions | 2022



+2,400 National Publications

CU Innovations Activities



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THE POWER OF PARTNERSHIPS



CHILDREN'S HOSPITAL COLORADO



In June 2024, Children's Hospital Colorado in partnership with CU Anschutz launched the **Colorado Child Health Research Institute (CCHRI)**, the official administrative, scientific and operational home for child health research on campus

\$182.6M

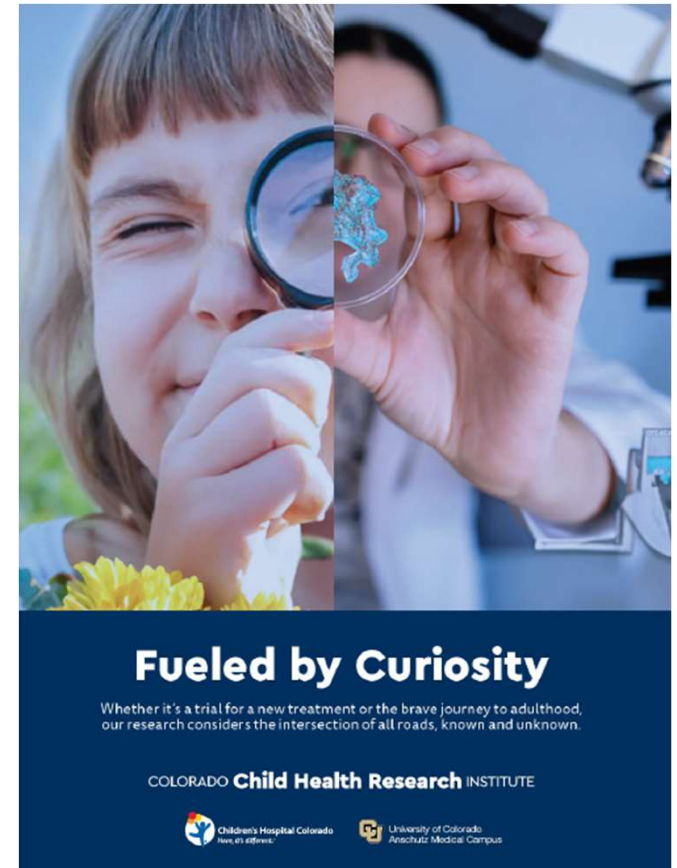
Annual child health research funding to CU Anschutz and Children's Colorado



Ronald Sokol, MD
Chief Scientific Officer
Child Health



Jenae Neiman, BSN, MBA
Vice President,
Research Operations, CHCO



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UCHEALTH: ELECTRONIC TOOLS TO SUPPORT RESEARCH

RECRUIT: *An EHR-integrated research recruitment tool*

- Patients can indicate preferences, sign e-consent forms, and receive messages about research opportunities through My Health Connection (720,000+ messages per year)

COSMOS: *A new database tool that facilitates research via Epic*

- Enables sharing of HIPAA-deidentified EHR data across 262 million patients from 1,500+ hospitals
- Tools for integrating data into clinical workflows



Tom Campbell, MD
Chief Clinical Research Officer
Professor, CU Anschutz



Laurie Blumberg-Romero, MA
Vice President
Research Administration UCHealth



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COMMUNITY AND CAMPUS ENGAGEMENT

*Sharing our research successes with our campus
and greater community*



Annual CU Anschutz Research Awards Event, Feb 2024



Biannual Transforming Healthcare lecture series,
featuring breakthroughs in AI and immunotherapy



Inaugural Distinguished Research Lectureship,
honoring Dana Dabelea, PhD



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THE FUTURE OF THE OVCR



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2024 STATE OF RESEARCH ADDRESS

Recap

- Top Challenges in Biomedical Research
- Office of the Vice Chancellor for Research Overview
- Funding Snapshot and Key Research Metrics
- Campus Research Highlights
- Partnerships and Community Engagement
- Looking to the Future





Q&A