



Value of Research and Cost of Research

Regents Finance Committee Meeting
May 22, 2024

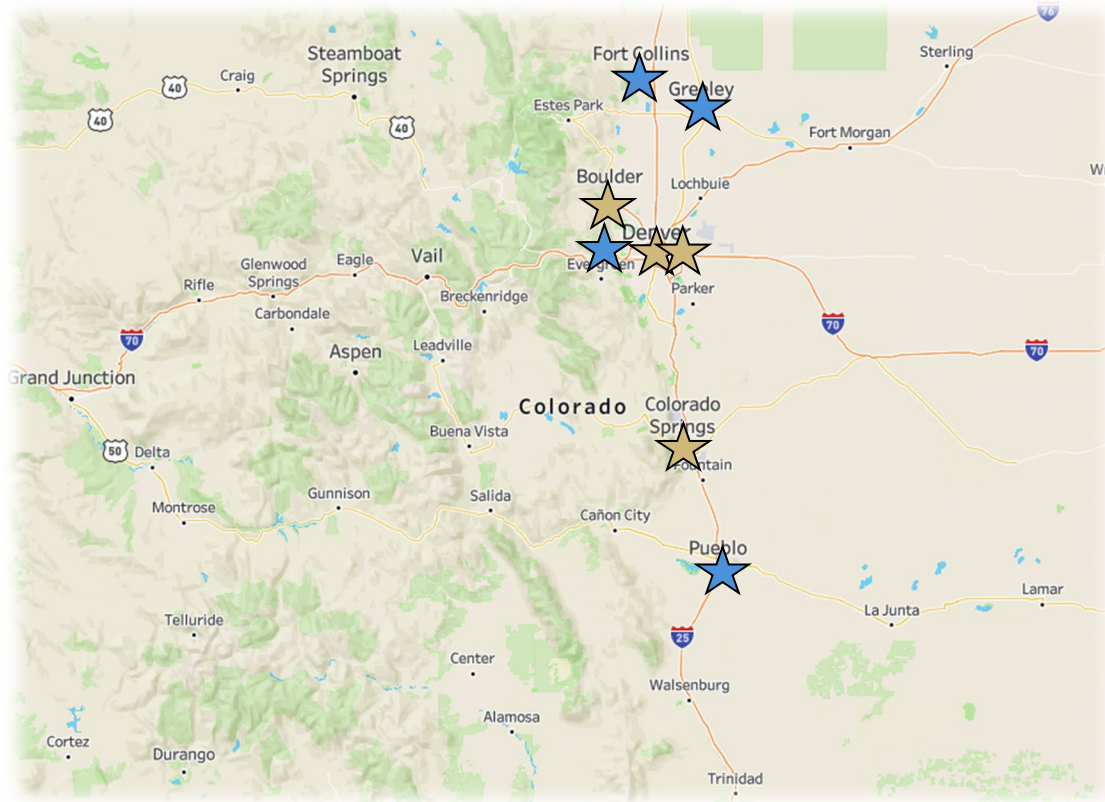
Why Does CU Do Research?

Research is a critical part of CU's statutory role and mission:

- The Boulder campus of the university of Colorado shall be a comprehensive graduate research university (Section 23-20-101 (1)(a), C.R.S. (2024))
- The Denver campus of the university of Colorado shall be an urban comprehensive undergraduate and graduate research university (Section 23-20-101 (1)(b), C.R.S. (2024))
- The Colorado Springs campus of the university of Colorado shall be a comprehensive baccalaureate and specialized graduate research university (Section 23-20-101 (1)(c), C.R.S. (2024))
- [The health sciences center campus of the university of Colorado] is affiliated with the university of Colorado hospital and other health-care facilities that offer settings for education, clinical practice, and basic and applied research (Section 23-20-101 (1)(d), C.R.S. (2024))



Colorado Research Institutions of Higher Education



- Of the 31 public institutions of higher education in Colorado, only 4 governing boards are research institutions
- CU system represents half of all public research institutions in Colorado

- ★ Colorado School of Mines
- ★ Colorado State University System
 - CSU Ft. Collins
 - CSU Pueblo
- ★ **University of Colorado System**
 - CU Anschutz
 - CU Boulder
 - UCCS
 - CU Denver
- ★ University of Northern Colorado



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Why Does CU Do Research?

- Improves student educational experiences
 - Influences student decisions about where to study
 - Helps prepare students for the workforce and future education
- Increases economic impact
 - Contributes to development of startup companies and patents
 - Attracts philanthropic contributions
- Enhances university reputation and name recognition
 - Supports student and faculty recruitment and retention
- Strengthens communities
 - Benefits the local, state, and national community through advances in healthcare, science, technology, and other disciplines
 - Develops reciprocally beneficial relationships between community and university



FY 2022-23 CU System Research Funding

- **Awards and Gifts**

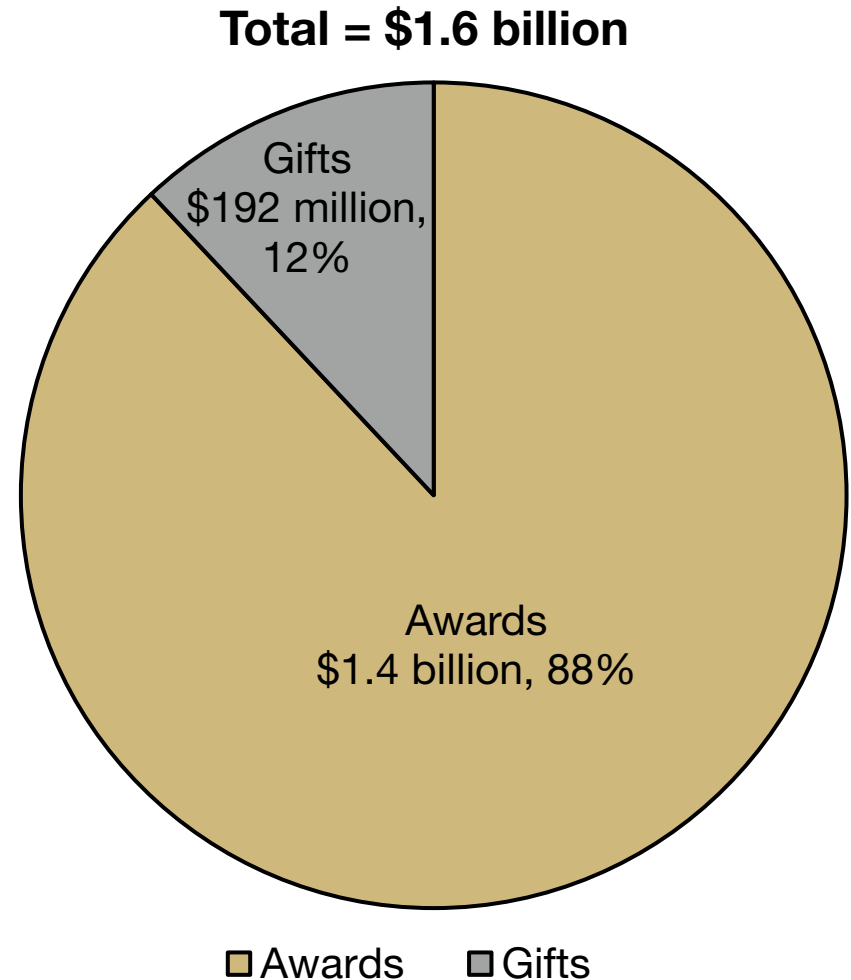
- \$1.6 billion in total awards + gifts supporting research
- +9% over prior year, highest total in CU history

- **Awards Only**

- \$1.4 billion in total awards only
- +4% over prior year, highest total in CU history

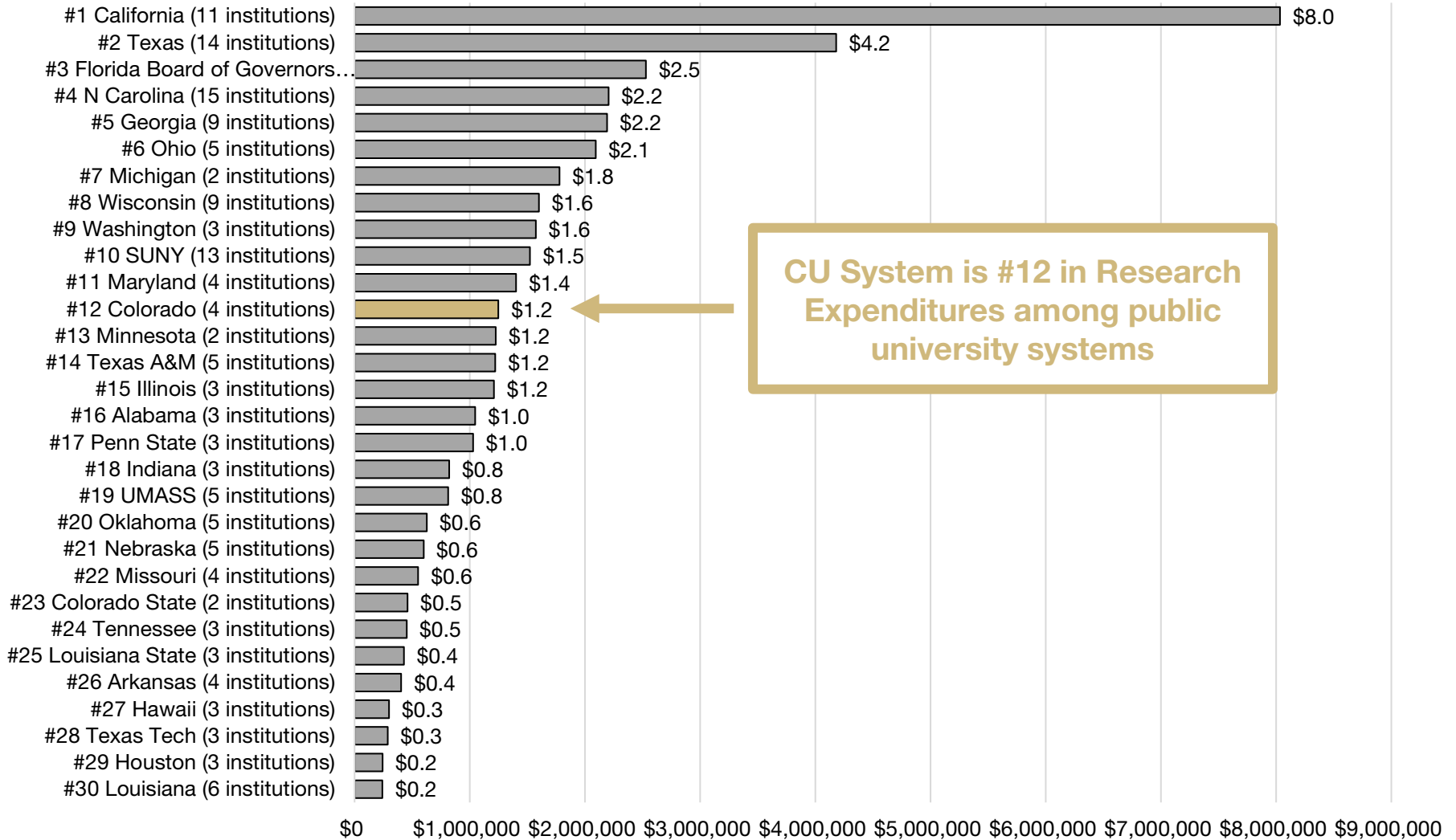
- **Gifts Only**

- \$191.6 million in total gifts supporting research
- +65% over prior year



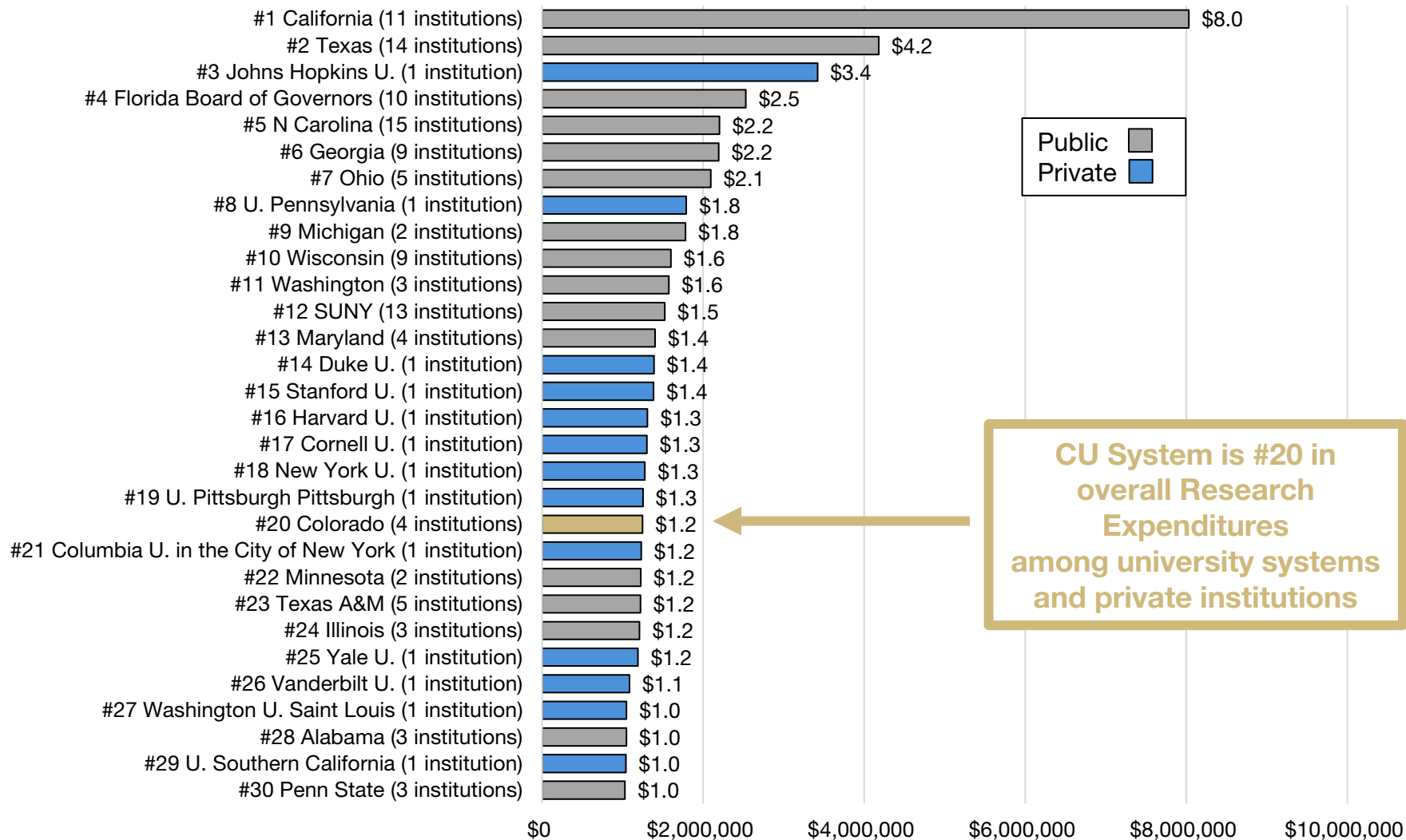
How Does CU Compare to its Peers?

Total research funding, in thousands (public university systems)

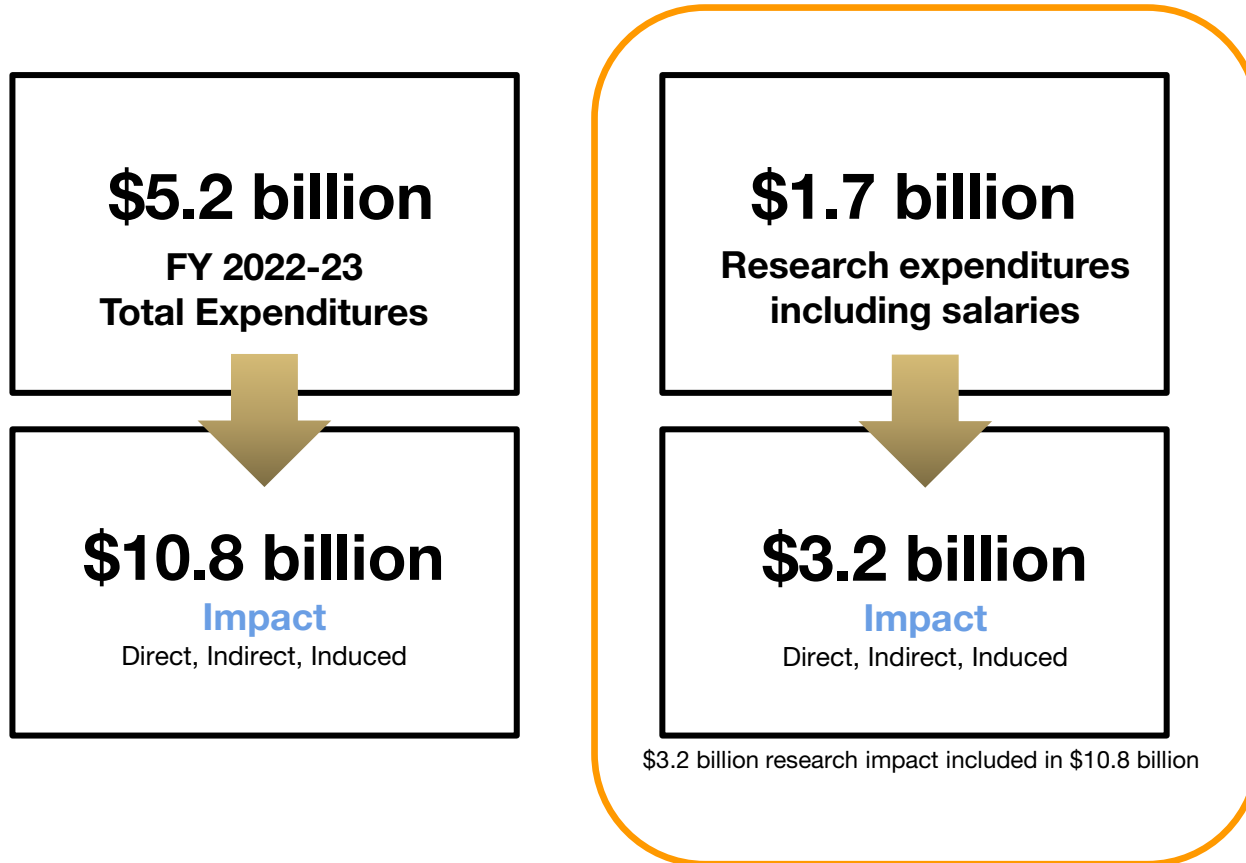


How Does CU Compare to its Peers?

Total research funding, in thousands (public university systems & private institutions)



CU Economic Impact from Research (FY 2022-23)



Calculated impact includes direct, indirect, and induced impact from expenditures.

Source: FY 2022-23 CU Economic Impact Study. Analysis by Leeds School of Business, Business Research Division.



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Research Cost Recovery

Federal Sponsored Research

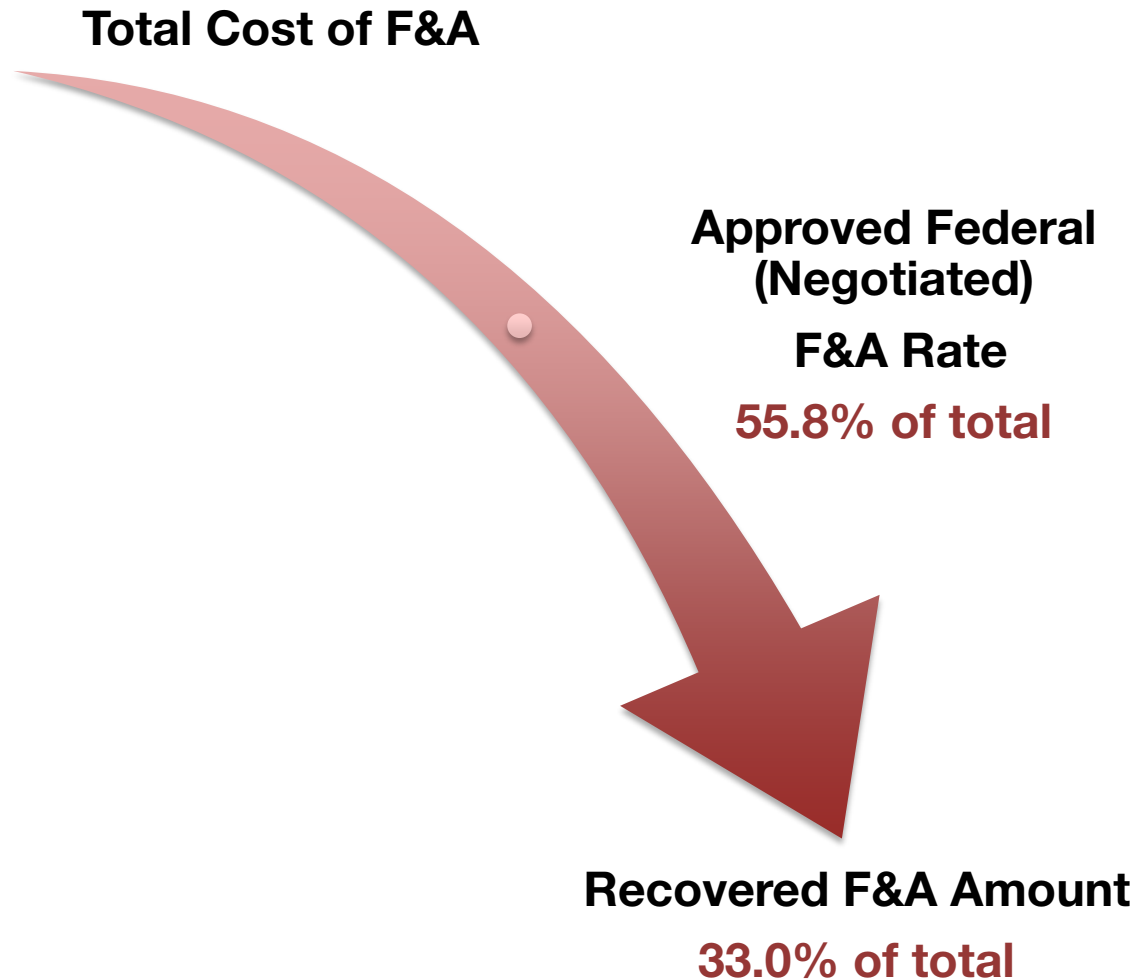
- CU campuses negotiate with an assigned federal agency to set rates to recover **facilities and administrative (F&A)** costs associated with sponsored research
- The final, negotiated rate is less than actual costs

State and Local Sponsored Research

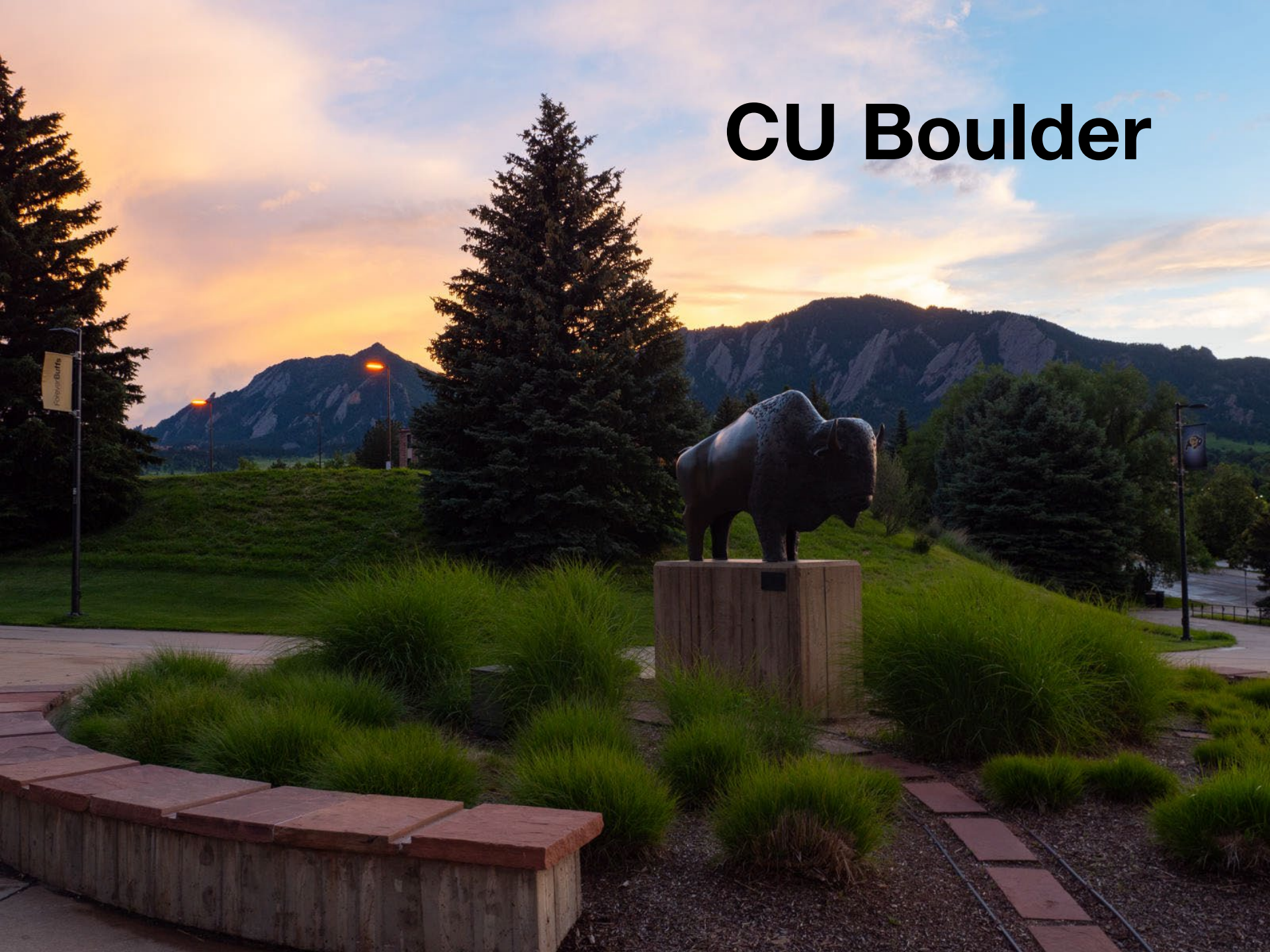
- The federal negotiated rate may be proposed to state and local partners, but non-federal sponsors do not always agree to pay the federal negotiated rate, further lowering recovered costs



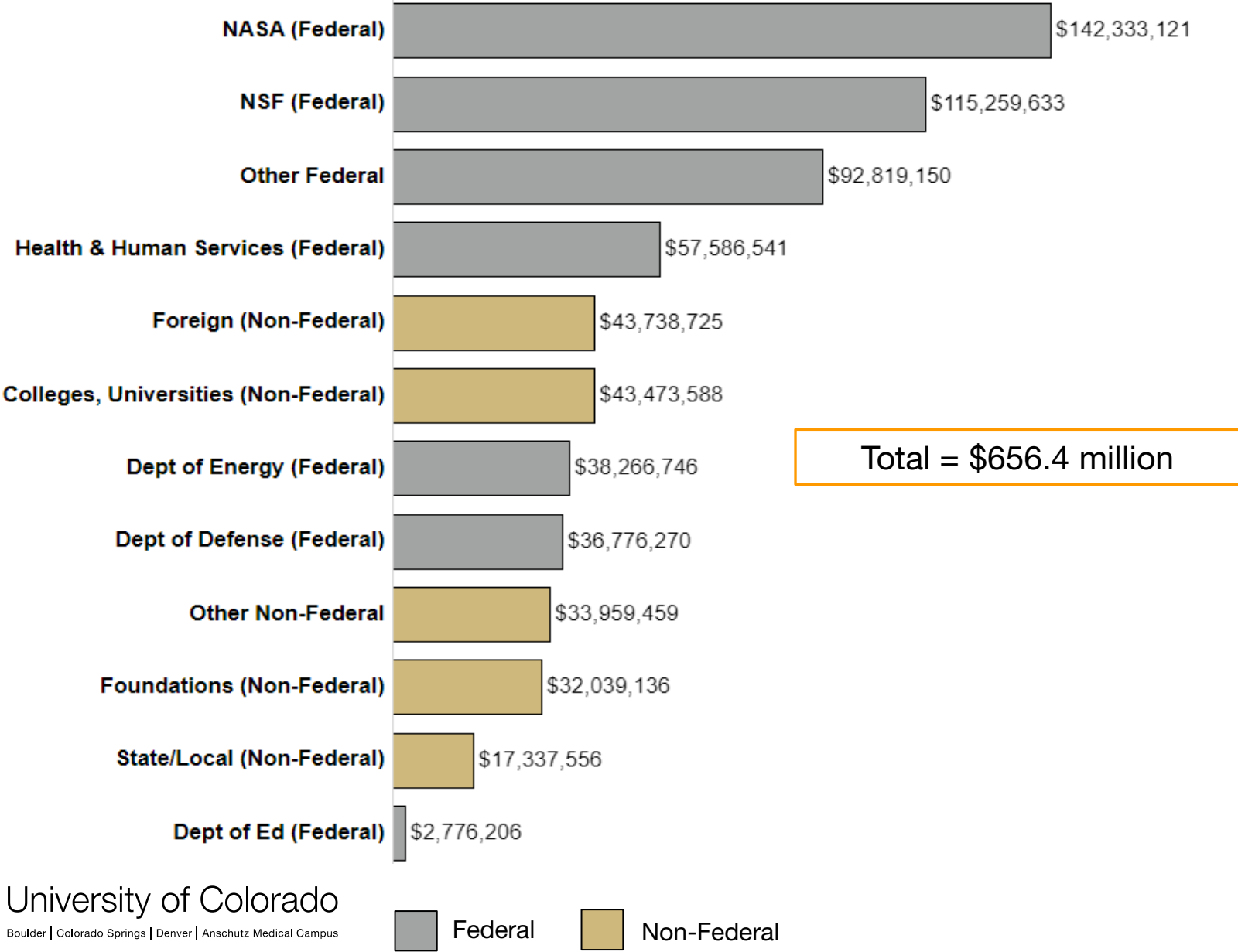
Underfunded Facilities and Administration Costs



CU Boulder



CU Boulder: FY 2022-23 Sponsored Research Awards



CU Boulder: #1 Recipient of NASA Funding

Public University Research Funding, in thousands (FY 2021-22)

1	U. Colorado Boulder	\$166,203
2	U. California Berkeley	\$74,073
3	U. Marylandc	\$73,862
4	U. Arizona	\$60,760
5	U. New Hampshire	\$49,867
6	Arizona State U.	\$49,398
7	U. Iowa	\$42,072
8	Utah State U.	\$40,850
9	U. Oklahoma Norman and Health Science Center	\$37,076
10	U. Alabama Huntsville	\$33,436
11	U. California Los Angeles	\$31,788
12	U. Michigan Ann Arbor	\$27,890
13	U. Maryland Baltimore County	\$27,592
14	U. Alaska Fairbanks	\$22,954
15	U. Washington Seattle	\$20,794
16	Pennsylvania State U. University Park and Hersh..	\$18,875
17	San Jose State U.	\$17,474
18	U. Texas Austin	\$17,385
19	Georgia Institute of Technology	\$14,950
20	U. California San Diego	\$13,781
21	U. Wisconsin-Madison	\$13,728
22	Purdue U. West Lafayette	\$13,223
23	U. Florida	\$11,394
24	U. Hawaii Manoa	\$11,011
25	U. Illinois Urbana-Champaign	\$10,846
26	Colorado State U. Fort Collins	\$10,455



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Source: National Science Foundation HERD Survey (Higher Education Research and Development Survey). Data prepared by CU System Institutional Research (ir@cu.edu)

CU Boulder: Notable Research Accomplishments

- **AB Nexus/ARPA-H**
 - Team awarded up to \$39 million to develop therapies to end osteoarthritis
- **National Science Foundation (NSF) Regional Innovation Engines**
 - CO-WY selected as one of 10 inaugural regions
 - Award could net \$160 million over 10 years
- **Space Weather Center (NASA)**
 - \$10 million for “Space Weather Operational Readiness Development Center”
 - Led by CU Boulder Space Weather Technology, Research and Education Center
- **Excellence in the Arts & Humanities**
 - Dimitri Nakassis (Classics) won NEH Fellowship
 - Elspeth Dusinberre (Classics) won Guggenheim Fellowship
 - Center for Asian Studies won grant from U.S. Department of Education
 - National Resource Center
 - Brian Valente-Quinn (French) won Fulbright Global Scholar Award



CU Boulder: Student Engagement Examples

FY 2022-23

Scholarship Activity	Student Participation
Enrolled in thesis, dissertation, independent study, research practicum, clinical research	6,118
PhD students published, performed, or presented with faculty	76%
Percentage of seniors (undergraduate students) who report participating in research	19%
Number of student-faculty partnerships supported by Undergraduate Research Opportunities Program (UROP) and Professional and Academic Conference Endowment (PACE)	400+
Percentage of PhD students who conducted independent research	100%
Percentage of graduate students engaged in research, scholarly and creative work activities	100%



CU Boulder: F&A Rates and Recoveries

FY 2020-21 to FY 2022-23

FY 2022-23	Percent	Facilities Costs (millions)	Administration Costs (millions)	Total Costs (millions)
Approved Federal (Negotiated) F&A Reimbursement Rate	56.5%*	\$134.3	\$114.5	\$248.7
Actual Recovered F&A Amount	29.4%*	\$75.9	\$64.7	\$140.5*

FY 2021-22	Percent	Facilities Costs (millions)	Administration Costs (millions)	Total Costs (millions)
Approved Federal (Negotiated) F&A Reimbursement Rate	56.5%*	\$121.3	\$103.4	\$224.7
Actual Recovered F&A Amount	28.0%*	\$68.5	\$58.4	\$127.0*

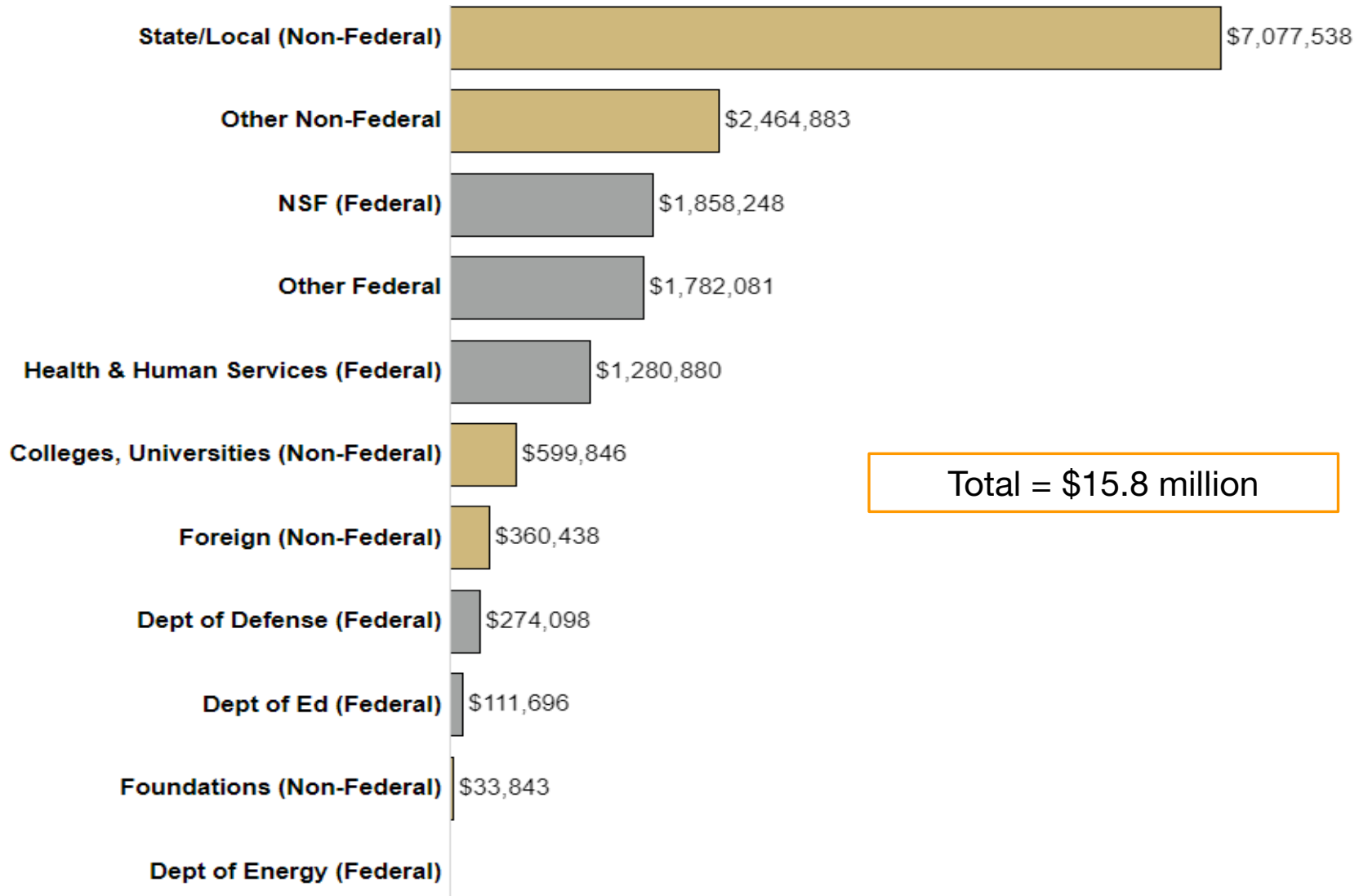
FY 2020-21	Percent	Facilities Costs (millions)	Administration Costs (millions)	Total Costs (millions)
Approved Federal (Negotiated) F&A Reimbursement Rate	54.0%*	\$111.8	\$103.9	\$215.7
Actual Recovered F&A Amount	27.9%*	\$60.4	\$56.1	\$116.5*





UCCS

UCCS: FY 2022-23 Sponsored Research Awards



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Federal

Non-Federal

UCCS: Notable Research Accomplishments

- Notable Research Accomplishments
 - National Institutes of Health Maximizing Investigators' Research Award
 - Oluwatosin Oluwadare, Computer Science
 - CAREER grant from National Science Foundation
 - Dmytro Bozhko, Physics
 - American Psychological Foundation (APF) Walter Katkovsky research grant
 - Steven Bistricky, Psychology and Lyda Hill Institute for Human Resilience
- Research Highlights
 - Hosted artists-in-residency Alessandra Ribeiro and Bianca Lucia Lopes (Fall 2023)
 - Celebrating and teaching Jongo, an Afro-Brazilian tradition that involves music, dance, and singing
 - Hosted GRIT: Resiliency in Action Conference (March 2024)
 - Hosted community-wide Colorado Springs Undergraduate Research Forum (April 2024)
 - 20th anniversary



UCCS: Student Engagement Examples

FY 2022-23

Scholarship Activity	Student Participation
Enrolled in thesis, dissertation, independent study, research practicum, clinical research	1,542
Undergraduates funded by campus and college research programs (not grant funded; URA participation)	24
Center for Student Research membership	371
Research course enrollment (mentored by Faculty)	137
Students working as paid research assistants	44
Students working on a sponsored project	146



UCCS: F&A Rates and Recoveries

FY 2020-21 to FY 2022-23

FY 2022-23	Percent	Facilities Costs (millions)	Administration Costs (millions)	Total Costs (millions)
Approved Federal (Negotiated) F&A Reimbursement Rate	46.0%*	\$2.9	\$1.9	\$4.8
Actual Recovered F&A Amount	21.3%*	\$1.3	\$0.9	\$2.2*

FY 2021-22	Percent	Facilities Costs (millions)	Administration Costs (millions)	Total Costs (millions)
Approved Federal (Negotiated) F&A Reimbursement Rate	46.0%*	\$3.0	\$2.0	\$5.0
Actual Recovered F&A Amount	17.8%*	\$1.4	\$0.9	\$2.3*

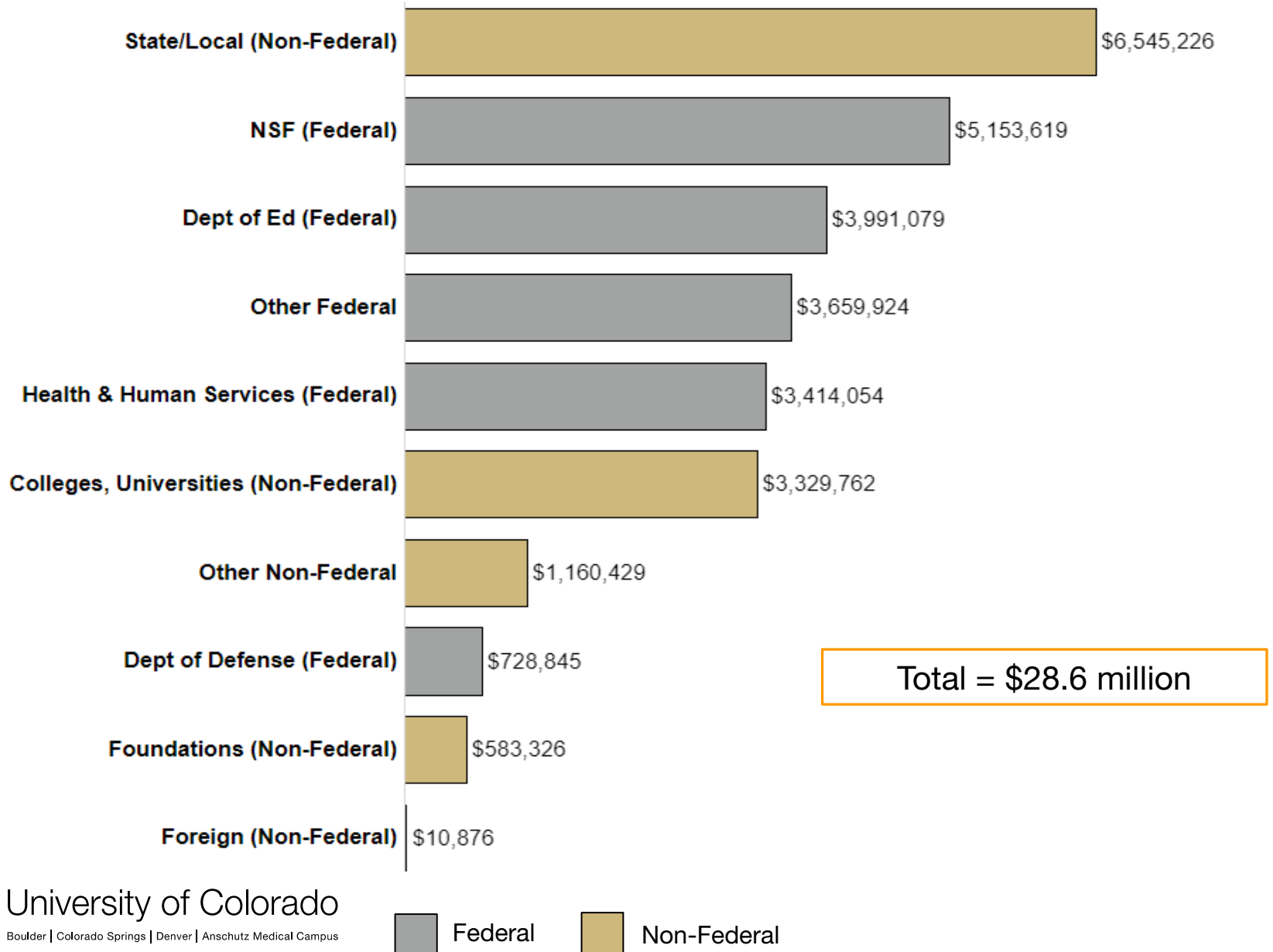
FY 2020-21	Percent	Facilities Costs (millions)	Administration Costs (millions)	Total Costs (millions)
Approved Federal (Negotiated) F&A Reimbursement Rate	46.0%*	\$2.4	\$1.6	\$4.1
Actual Recovered F&A Amount	22.9%*	\$1.1	\$0.8	\$1.9*



CU Denver



CU Denver: FY 2022-23 Sponsored Research Awards



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CU Denver: Notable Research Accomplishments

- Building capacity through support of research teams and individual researchers
- Grand Challenges Initiative
 - 100+ faculty, 100+ students engaged in convergence research
 - Research teams in AI, data science, climate, cybersecurity, health, smart cities, and sustainable urban infrastructure
 - 22 principal investigators have received 30 external grant awards totaling \$6.4 million
- Seed Grants Program for Innovative Research and Creative Work
 - Supports preliminary work and grant proposal development efforts
 - Competitive program
 - Granted 33 awards since spring 2023
- High-impact research
 - Christopher Weible (School of Public Affairs): Nearly 20,000 Google Scholar citations
 - Michael Moore (Department of Integrative Biology) and others published article in National Academy of Sciences (March 2024)



CU Denver: Student Engagement Examples

FY 2022-23

Scholarship Activity	Student Participation
Office of Undergraduate Research & Creative Activities (URCAS) Workshop Attendees	380
EURēCA! Student Assistants and Summer Fellows (paid research and creative activities opportunities)	100
Number of undergraduate and graduate students employed as research assistants (\$4.5 million total annual pay)	230
Enrolled in thesis, dissertation, independent study, research practicum, clinical research	1,062
Research and Creative Activities Symposium Presentations	185



CU Denver: Indirect Cost Rates and Recoveries

FY 2020-21 to FY 2022-23

FY 2022-23	Percent	Facilities Costs (millions)	Administration Costs (millions)	Total Costs (millions)
Approved Federal (Negotiated) F&A Reimbursement Rate	55.5%*	\$22.1	\$53.2	\$75.3
Actual Recovered F&A Amount	20.0%*	\$2.2	\$1.9	\$4.1*

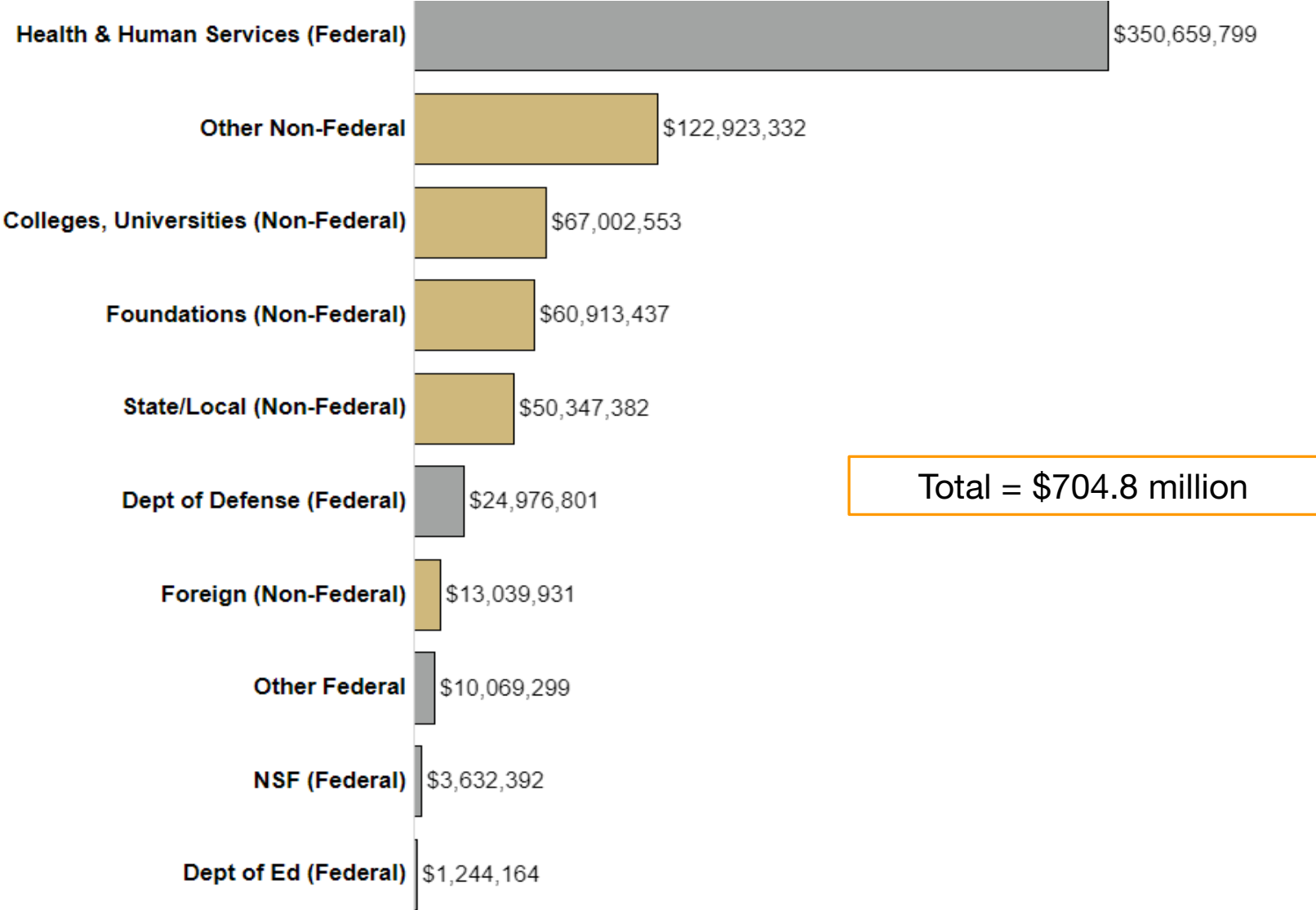
FY 2021-22	Percent	Facilities Costs (millions)	Administration Costs (millions)	Total Costs (millions)
Approved Federal (Negotiated) F&A Reimbursement Rate	55.5%*	\$22.5	\$50.0	\$72.5
Actual Recovered F&A Amount	30.0%*	\$1.9	\$1.7	\$3.6*

FY 2020-21	Percent	Facilities Costs (millions)	Administration Costs (millions)	Total Costs (millions)
Approved Federal (Negotiated) F&A Reimbursement Rate	55.5%*	\$18.4	\$46.9	\$65.3
Actual Recovered F&A Amount	25.0%*	\$1.7	\$1.5	\$3.2*

CU Anschutz



CU Anschutz: FY 2022-23 Sponsored Research Awards



CU Anschutz: Notable Research Accomplishments

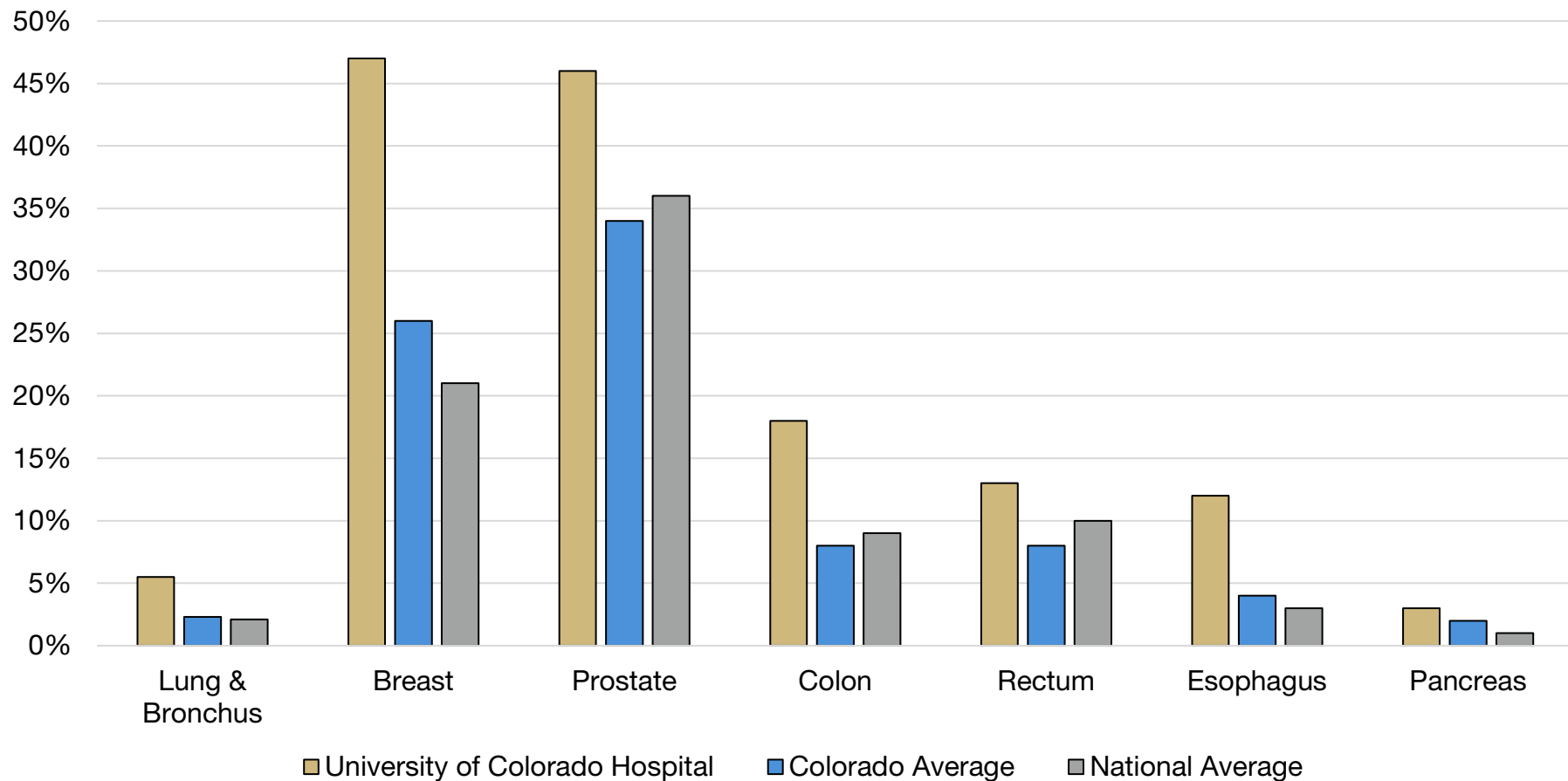
- School of Medicine ranked 23rd in country for federal research funding
 - CAR-T therapy for advanced, treatment-resistant blood cancer or lymphoma
 - Developed, manufactured and clinically administered at CU Anschutz Campus
 - CU Cancer Center received \$74.8 million in research funding in FY 2022-23
- Center for Drug Discovery – School of Pharmacy
 - Specialized resource to screen thousands of agents via robotic platform
 - Identifying novel drug therapies
- Barbara Davis Center
 - Transforming care for Type 1 diabetes
 - Nationally recognized, leading clinical trials, basic science discovery
- School of Dental Medicine
 - Multi-material 3D print processing of antimicrobial and antifungal dental prosthetics
 - Improved performance and cost of customized dentures
- Graduate School at CU Anschutz
 - Over 200 peer reviewed publications since 2020 and three Gilliam Fellows
 - CU Anschutz ranked 11th nationally in NIH graduate funding
- Shringix Vaccine discovered at CU Anschutz



CU Anschutz: Notable Research Accomplishments

Research Impact Improves Cancer Survival Rates

Advanced (Stage IV) Cancer Five Year Survival Rate



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CU Anschutz: Student Engagement Examples

FY 2022-23

Scholarship Activity	Student Participation
Enrolled in thesis, dissertation, independent study, research practicum, clinical research	913
Undergraduates funded by campus and college research programs (not grant funded)	189
Presented at conferences	9
Published, performed, or presented with faculty	222
Percentage of graduate students who participate in research	100%



CU Anschutz: F&A Rates and Recoveries

FY 2020-21 to FY 2022-23

FY 2022-23	Percent	Facilities Costs (millions)	Administration Costs (millions)	Total Costs (millions)
Approved Federal (Negotiated) F&A Reimbursement Rate	55.5%*	\$94.5	\$209.1	\$303.6
Actual Recovered F&A Amount	37.0%*	\$76.3	\$67.2	\$143.5*

FY 2021-22	Percent	Facilities Costs (millions)	Administration Costs (millions)	Total Costs (millions)
Approved Federal (Negotiated) F&A Reimbursement Rate	55.5%*	\$94.9	\$189.0	\$283.9
Actual Recovered F&A Amount	37.0%*	\$69.8	\$61.5	\$131.3*

FY 2020-21	Percent	Facilities Costs (millions)	Administration Costs (millions)	Total Costs (millions)
Approved Federal (Negotiated) F&A Reimbursement Rate	55.5%*	\$92.0	\$168.9	\$260.9
Actual Recovered F&A Amount	36.0%*	\$60.3	\$53.2	\$113.5*

