

PROGRAM DESCRIPTION

Department of Higher Education and Workforce Development

HB Section(s): 3.255

Program Name: Division of Four-year Colleges and Universities

Program is found in the following core budget(s): University of Missouri - Precision Medicine

1a. What strategic priority does this program address?

Outreach, Access and Success

1b. What does this program do?

The NextGen Precision Health Institute will address the most pressing health problems facing Missourians. The requested funding, coupled with the research expertise located at the four campuses of the UM System, will be used to embark on a bold plan to transform healthcare and improve lives for all Missourians. The NextGen Precision Health Institute at the University of Missouri Campus in Columbia will anchor the initiative. The Institute will house approximately 60 researchers who will help create personalized healthcare that will treat diseases based on individual variability in genes, environment and lifestyle, rather than a "one-size-fits-all" approach.

The NextGen Precision Health Institute, a five-story, 265,000 square-foot facility will feature 42 wet labs housing strategically focused precision health research teams integrated with 18 data analytics teams to process the enormous amounts of data that will be generated. MRI imaging space, biomedical sensing technology for early diagnosis and personalized treatments, and collaborative space for private corporate partnerships will round out the facility. Research conducted in the new facility will address vascular, neurological and cancer-related disease in Missouri and beyond. To quickly and effectively improve healthcare in the state, a multi-disciplinary approach that encompasses research, product development and public health education is required.

We intend to address Missouri's grand health challenges by:

1. Pursuing breakthrough research in cancer, vascular and neurological fields.
2. Collaborating with industry partners and entrepreneurs to translate our research into new technologies and medicines.
3. Working with clinicians to translate our research into new treatments for patients.

The promise of healthcare advances from cutting edge research will attract new jobs and revenue that will fuel growth. The University has already entered into a partnership with Siemens to develop new technology and training programs for the future healthcare workforce. The University continues to pursue new partnerships to bring high end jobs to Missouri related to precision health. Currently the UM System has an annual impact of \$5.4 billion in the state and the NextGen Institute is expected to increase this impact significantly. Our highest priority is to create a pipeline that encourages more breakthrough successes and quickly translates those innovations to the lives of our citizens.

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2a. Provide an activity measure(s) for the program.

Measure: Build state-of-the-art NextGen Precision Health Institute.

The NextGen Precision Health Institute will be a state-of-the-art facility at the University of Missouri-Columbia that will be available to all UM System researchers and industry partners. The world-class facility, which broke ground in June 2019 will bring biomolecular, computational and engineering disciplines, veterinary and human medicine under one roof. The building is designed with the goal of rapid production of precision health technologies. The Institute will provide the platform needed to integrate multidisciplinary laboratory space with advanced analytical instrumentation, computational processing and pilot-scale manufacturing into a pipeline encompassing the entire system.

The complex also will have dedicated space for public and private corporate partnerships. These industry collaborations will help launch startup companies and provide the support needed to bridge the 'valley of death' that stops many new technologies from making it to the consumer market.

Base Target: Ribbon-cutting for new facility in October 2021

Stretch Target: Open ahead of schedule before October 2021

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2b. Provide a measure(s) of the program's quality.

Measure: Recruit 30-60 exceptional research faculty with proven track records of excellence in cancer, vascular and neurosciences research who will train the next generation of precision medicine scientists.

Nationally and internationally renowned researchers in our three NextGen core areas will be recruited to build out our precision health capabilities. These highly skilled scientists will integrate with UM System research teams to tackle the health challenges associated with cancer, vascular and neurological disease with the goal of creating personalized, revolutionary precision medicine. Productivity will be measured by the amount of funding received from federal and industry sources.

Missouri residents and students alike will reap the benefits of the initiative. As we educate the next generation of researchers and medical practitioners, the NextGen Institute will demonstrate the importance of working together across disciplines to better address the needs of our citizens as individuals. Students will train in the rich environment of a leading biomedical research facility, under renowned scientists. They will learn how to transfer research into the most promising drugs and technologies through collaborations between UM System universities and industry partners.

Ultimately, these efforts will provide valuable experience for future professionals and fuel the state's development of a highly skilled workforce.

Base Target: 30 new faculty by October 2021

Stretch Target: 60 new faculty by October 2021

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2c. Provide a measure(s) of the program's impact.

Measure: Increase in federal and sponsored grant funding will help address cancer, vascular and neurological disease improving the health of Missourians.

In February 2018, the University established the bold goal of enhancing Mizzou's research enterprise by doubling MU's funding from federal sources, such as the National Science Foundation and the National Institutes of Health, as well as industry and foundations - over the next five years. This will require supporting investigations in promising new areas of study and providing advanced opportunities for collaboration for faculty and students. In addition, it will require increased partnerships with industry and higher education institutions.

The NextGen Precision Health Institute and the cancer, vascular and neuroscience researchers it will attract, will amplify our efforts to increase our research output and will help Mizzou to meet our goal of doubling our research dollars. With the addition of 30-60 highly impactful researchers, who will integrate and collaborate with current teams, we estimate that health research conducted in the NextGen Institute will attract \$50 million or more in additional federal funding annually. Increased funding will significantly impact research output, meaning increased collaborations among scientists and powerful results that will address the grand health challenges facing Missourians.

Base Target: Double research funding to \$410 million in 2023

Stretch Target: Research funding in excess of \$410 million in 2023

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2d. Provide a measure(s) of the program's efficiency.

Measure: Shared state-of-the-art research technologies and expertise among UM System researchers will decrease redundancies while increasing research output.

Core facilities that will be located in the NextGen Institute are centralized, shared resources that provide access to instruments, equipment, technologies and expertise to UM System clinical and scientific researchers, as well as industry partners. Operating on a fee-for-service basis, the core facilities in the NextGen Institute will range from animal modeling to a 7-Tesla MRI. Also, provided in each core will be the experts needed to help researchers attain their scientific goals.

The building will include resources such as cores for electron microscopy, magnetic resonance imaging, single-photon emission computed tomography and more. These shared resources will create new opportunities across the UM system. For example, UMKC researchers do not currently have access to a well-equipped animal research facility, or vivarium. The NextGen Institute will provide this access to help develop therapies for companion animals and serve as an important step toward clinical trial evaluations for humans.

Additionally, the expertise needed to run and evaluate results from this highly specialized equipment will be conducted by faculty and staff recruited to the Institute. These high-paying jobs will contribute to the economic development of the region and state. We will continue to work with global industry partners, such as Siemens Healthineers, Roche, Cerner, and others, to offset the costs of these core facilities.

Base Target: Outfit the NextGen Institute with high-end, technologically advanced core facilities.

Stretch Target: Share resources and create research collaborations with other campus facilities.

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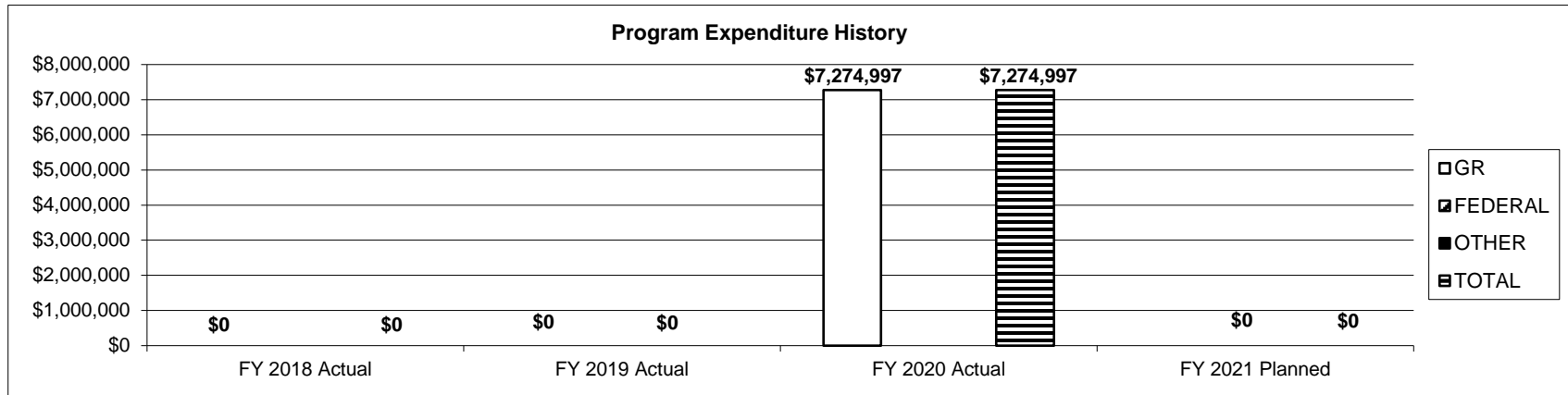
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3. Provide actual expenditures for the prior three fiscal years and planned expenditures for the current fiscal year. (Note: Amounts do not include fringe benefit costs.)



Net of extraordinary withholding in FY 2020 and changed to Federal Stabilization Fund and unfunded in FY 2021.

FY 2021 Planned shows \$0 as the \$10,000,000 of one-time federal stimulus funds in response to the COVID-19 pandemic is empty authority.

4. What are the sources of the "Other " funds?

None

5. What is the authorization for this program, i.e., federal or state statute, etc.? (Include the federal program number, if applicable.)

Section 172.010-172.750, RSMo

6. Are there federal matching requirements? If yes, please explain.

No

7. Is this a federally mandated program? If yes, please explain.

No