

The Status of Research at KUMC: FY2005 vs. 2006 (The First Year of Progress in the KUMC 10-Year Vision)

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This report is a summary of KUMC's research progress in FY2006. Specifically, the summary is a response to a request by Dr. Benno Schmidt, the chair of the Blue Ribbon Task Force that was charged by the Greater Kansas City Community Foundation in early 2005 with evaluating the state of higher education in Kansas City. Dr. Benno Schmidt is a former president of Yale University and is current Chairman of the Board of Directors for Edison Schools, Inc. The Task Force consisted of notable higher education leaders, who collected information from several sources including two- and four-year college and university leadership, faculty, students, staff, civic leaders, clergy, superintendents, school board members, nonprofit leaders, government officials and citizens. The purpose of the study was to provide a framework for business, philanthropic, civic and government leaders to identify funding priorities and strengthen higher education in the Kansas City region. The task force completed its work on July 1, 2005.

Their conclusions were subsequently published in the [Time to Get it Right](http://www.gkccf.org) report (www.gkccf.org), which identified two important elements to strengthen higher education in the Kansas City region: 1) a strong urban university and 2) enhanced research capacity. The report urged Kansas City to invest significant new resources in the University of Kansas Medical Center as a mechanism to enhance research capacity. Even though no community resources were provided during the first year after the report came out, KUMC took the report seriously and reallocated internal funds to address specific issues within the report. The following are details of the KUMC progress and fiscal years 2005 and 2006 are compared.

The Blue Ribbon Task Force recommended that KUMC develop a 10-year strategy to build research capacity, add 100 high-quality researchers, double enrollment in the Ph.D. program, increase the number of postdoctoral fellows, increase external research and development funding from \$76 million to \$300 million annually and invest \$645 million in KUMC over 10 years. Each of these items will be addressed.

Regarding the 10-year strategy to build research capacity at KUMC, a document entitled [The Time is Now: a 10-year Vision & Strategy to Advance the Life Sciences](#) was released in January, 2007. This is a 48-page document that summarizes KUMC's plan to build research.

(www.kumc.edu/evc/TheTimeIsNow.pdf)

This document provides statements regarding our vision from KU leadership, the transformation that is planned, and the needed investment and anticipated return on investment. Specific details regarding the established disease and organ-based research programs, emerging disease and organ-based research programs, translational research programs and shared resources are included.

Established programs include Cancer (University of Kansas Cancer Center, Neuroscience/Brain Health (Kansas Neuroscience & Brain Health Institute), Maternal/Fetal/Child Health (Institute of Maternal-Fetal Biology), Reproductive Sciences/Fertility (Center for Reproductive Sciences), Kidney (The Kidney Institute), and Liver (The Liver Center).

Emerging programs include Bioengineering (Bioengineering Research Center), Bone (Kansas City Osteosciences Institute), Diabetes (The Diabetes Institute), Heart (Cardiovascular Research Institute), Immunology/Virology, Integrative Medicine (Center of Excellence for Complementary and Alternative Medicine and Research), Obesity (Center for Physical Activity, Nutrition and Weight Management), Ophthalmology (department of Ophthalmology/Center for Ophthalmic Engineering/Clinical Eye Institute), Personalized Medicine (Center for Personalized Medicine) and Public Health (Institute of Public Health).

Translation research programs include the Heartland Institute for Clinical and Translational Research and Drug Discovery.

Shared Resources are Bio-informatics, Biostatistics (Center for Biostatistics and Advanced Informatics/ Department of Biostatistics), Compound Synthesis, High Throughput Screening, and Mass Spectrometry/Proteomics.

Regarding the addition of 100 high quality researchers over 10 years as suggested by the Blue Ribbon Task Force, KUMC's 10-year vision plan estimates that 244 researchers are required in the established and emerging research programs in order to accomplish its goals. Specific recruits for research included 22 new basic science faculty and 6 clinical faculty from 2005 to 2006.

In 2005, the research faculty in the School of Medicine at KUMC included 147 basic scientists and 43 clinical researchers for a total of 190. In 2006, 12 basic science and 6 clinical researchers were added for a total of 208 researchers representing a 9.5% increase in research faculty in 2006. Our 10-year vision includes addition of 244 researchers by 2015 which would more than double the research staff in the KUMC School of Medicine (from 190 to 434). More importantly, if the 244 researchers are largely clinical/ translational, then the clinical research workforce would increase more than 6-fold (from 43 to 287), which would complement the research infrastructure of the Heartland Institute for Clinical and Translational Research.

Planned estimates for the 244 senior and junior research recruits in the established, emerging and shared resource programs include 144 for established programs, 90 in emerging programs, and 10 in shared resource programs. In the established programs 85 additional research faculty are

planned for Cancer, 24 in Neuroscience, 14 in Maternal-Fetal, 3 in Reproductive Sciences, 9 in Kidney, and 9 in Liver. For emerging programs, 90 additional senior and junior faculty researchers are planned with 19 in Bioengineering, 2 in Bone, 20 in Diabetes, 3 in Heart, 8 in Immunology, 8 in Integrative Medicine, 14 in Obesity, >10 in Ophthalmology, 3 in Personalized Medicine, and 3 in Public Health. These numbers are estimates and there may be considerable overlap between programs. For example, some of the cancer recruits may be in the area of public health or neuroscience.

In addition, several of the program recruits may partner with University of Kansas at Lawrence, University of Kansas School of Medicine at Wichita and the University of Kansas Hospital. The 10-year strategy is based on regional collaboration that includes additional partners such as Stowers Institute for Medical research, Midwest Research Institute, University of Missouri at Kansas City, Kansas City University of Medicine and Biosciences, the Veterans Administration Hospitals, Saint Luke's Health System, Children's Mercy Hospitals and Clinics and Truman Medical Center.

In terms of doubling the PhD enrollment over 10 years as suggested in the report, slow progress has been made in 2006 with a 3% increase in the number of predoctoral students over 2005. This increase represented the addition of 1 student in the combined MD/PhD program in 2006 for a total of 19 students. In the PhD only program 2 students were added for a total of 83 students in this program. In both programs in 2006, 102 students were

enrolled whereas in 2005, 99 were enrolled. For the fall of 2007, five additional students have been added in to the MD/PhD program (total of 24) and five students have also been added in the PhD only program (total of 88).

The total number of students enrolled for the fall of 2007 is 112 which represents an increase of 9.8% over 2006. The addition of 12 students per year through 2015 in the PhD programs (combined MD/PhD and PhD only) would slightly more than double the number of PhD students enrolled in the KU School of Medicine.

65 postdoctoral students were recorded in the KU School of Medicine in 2005 and this increased to 81 in 2006 representing a 24.6% increase. This increase is largely due to a number of factors including 1) increasing the number of faculty, 2) increasing the amount of NIH funding (an ~17% increase in NIH funding was recorded between 2005 and 2006), 3) renewal of institutional NIH postdoctoral training grants that increased the number of positions, and 4) garnering individual postdoctoral awards from NIH and other private foundations.

In order to ensure continued growth in these areas, additional institutional postdoctoral training awards in established and emerging areas are needed.

Regarding increasing research and development funding from \$76 million to \$300 million over the next 10 years suggested by the Blue Ribbon Task Force, significant progress has been made. In FY 2006, the total dollars requested was \$384.5 million compared to \$362.9 million in 2005 representing a

6% increase. However, the amount of dollars award in 2006 was \$82.1 million compared to \$68.8 million in 2005 representing a 19.3% increase over 2005. NIH awards followed a similar trend with \$45.4 million in 2006 compared to \$38.9 million in 2005 representing 17% increase over 2005. The increase is likely due to the increased number of faculty researchers, applying for more and larger grants, and enhancing the synergy amongst the faculty by emphasizing programmatic centers and institutes.

As for the recommended investment of \$645 million in life sciences research over 10 years as suggested by the task force, the KUMC 10-year strategy estimates that \$798.6 million is required. \$380 million is estimated for recruitment of 152 senior faculty, \$73.6 million for 92 junior faculty for a total of \$453.6 million in faculty costs over 10 years. Additional facilities will be needed at KUMC and

KU-Lawrence to house the expanding research faculty and programs.

The estimated space requirements are 862,500 square feet of additional research space at an average cost of \$400 per square foot for a total facilities cost over 10 years of \$345 million. Thus, the total faculty and facilities cost over 10 years is \$798.6 million. These estimates are detailed in 'The Time Is Now—A 10-Year Vision & Strategy to Advance Life Sciences'

(www.kumc.edu/evc/TheTimeIsNow.pdf).

How do we raise \$800 million? KUMC and its partner institutions must seek opportunities with the State of Kansas including the Kansas Bioscience Authority, the Kansas City Area Life Sciences Institute, business leaders in the Kansas City region, Philanthropy, national resources including the NIH and other private foundations, Internal University Resources, and partnerships with area institutions that share our vision.