

Create, Advance, Inspire

The 2010 - 2014 Research Strategic Plan of the Emory University School of Medicine

Report to Thomas J. Lawley, M.D., Dean

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Abbreviations:	LIMS - Laboratory Information Management System
ACTSI - Atlanta Clinical and Translational Science Institute	MSM – Morehouse School of Medicine
ARRA - American Recovery and Reinvestment Act	NASF – Net assignable square feet
CDC – U.S. Centers for Disease Control and Prevention	NIH – National Institutes of Health
Children’s – Children’s Healthcare of Atlanta	PiCoTraCS - Pilot & Collaborative Translational & Clinical Studies
CLS - Computation and life sciences	PPG – Program project grant
CSI – Center for Systems Imaging	RAC – Research Advisory Council
eBIRT – electronic Biomedical Interactive Resource Tool	RFA - Request for applications
FIMS - Facilities Information Management System FDA – U.S. Food and Drug Administration	RSPH – Rollins School of Public Health
GCC – Georgia Cancer Coalition	OTT – Office for Technology Transfer
GDDDBS - Graduate Division of Biological and Biomedical Sciences	SOM – Emory University School of Medicine
GRA – Georgia Research Alliance	SURE - Space Utilization and REporting
Georgia Tech – Georgia Institute of Technology	TEC – The Emory Clinic
EUH – Emory University Hospital	TTR - Translational Technology and Resources
HIV – Human Immunodeficiency Virus	VAMC – Veterans Affairs Medical Center
IT – Information technology	WHSC - Woodruff Health Sciences Center
	Yerkes – Yerkes National Primate Research Center

I. Executive Summary

Where are we now? The Emory University School of Medicine (SOM) is now taking its place among the nation’s leading research-focused medical schools, thanks to a remarkable trajectory over the past 20 years. During this period, the SOM consistently has been one of the fastest growing research institutions in terms of marketshare, defined as the percentage of total National Institutes of Health (NIH) awards conferred to each of the nation’s 131 M.D.-granting accredited medical schools. Currently (2010), the SOM is ranked 16th among these schools. Our fifteen-year annual growth rate exceeded – in many cases doubled – that of all but one peer institution.

Where do we want to go? Can this dramatic rise continue? Are we on course to realize the goal of earlier research strategic plans, becoming one of the top-10 NIH-funded medical schools? The hundreds of SOM faculty and staff involved in this report unequivocally believe it’s possible, perhaps inevitable – *if* we continue to attract and retain top-ranked faculty and supply them with the space and support they need to recognize, seize, and take advantage of appropriate scientific opportunities. The 2010 research strategic plan anticipates that ***the SOM will advance into the ranks of the top 10 to 12 research intensive medical schools by the year 2015.***

It’s a worthy goal. Marketshare of NIH funding is a widely used measure of institutional research stature in the single most competitive national arena. However, in keeping with a mature research institution already well on its way in the marketshare arena, **the 2010 plan focuses less on marketshare and more on mindshare**, which more closely tracks the *impact* of our scientific achievements. The 2010 research plan anticipates that ***by 2015 the SOM will have achieved new levels of mindshare, recognized especially for the impact of its basic and clinical research enterprise upon the understanding of human disease and improving human***

health. Top-10 marketshare and expanded mindshare are intertwined. As we enhance mindshare, marketshare will follow as an outgrowth of increased research impact.

How do we get there? The 2010 SOM Research Strategic Plan provides a detailed roadmap to nurture our further research development over the next five years. It is built on the collective medical school faculty's view of what the SOM should – and can—accomplish during this time frame. This Plan reflects the input of hundreds of faculty and staff, from research leaders to young faculty beginning their research careers to administrative and regulatory staff. It also builds on the achievements of seven earlier research plans, the first in 1946, the most recent in 2003.

The goals and initiatives were selected in the context of our current challenges and opportunities. Key challenges include rapid research growth that has outstripped our research infrastructure, both in terms of increasingly limited research space (as Emory's past rise in NIH marketshare has closely tracked the addition of research space), administrative processes that do not optimally serve investigators, and an anticipated flattening of federal support for biomedical research for the next few years as the nation digs its way out of a recession. Corresponding opportunities include our highly collaborative research practices and our unique constellation of research partners, including the largest healthcare system in Georgia, the increasingly research-oriented Children's Healthcare of Atlanta, the Rollins School of Public Health, the unique resources of the Yerkes National Primate Center, the Georgia Institute of Technology with which we share highly ranked bioengineering programs, adjacency to the U.S. Centers for Disease Control and Prevention (CDC), umbrella catalyst organizations such as the Atlanta Clinical and Translational Research Institute, and the support of state initiatives such as the Georgia Research Alliance (GRA) and Georgia Cancer Coalition (GCC). Opportunities also take into account national priorities that appear to be moving toward a stronger emphasis on science and technology and renewed emphasis on research in health care delivery and outcomes.

The path forward. The 2010 roadmap describes eight specific initiatives encompassed within the following three broad goals:

Goal 1. Recognize discovery and achievement

Goal 2. Develop selected research programs

Goal 3. Facilitate research by investing in growth and integration of the infrastructure needed to support research activities more efficiently

Below is a description of these goals and associated initiatives, along with the required resources and implementation plan.

Goal 1. Recognize discovery and achievement. Emory already can boast numerous examples of high impact work involving: landmark studies that take science in an entirely new direction, such as new surgical approaches to neurologic disorders; introduction to the market of significant intellectual property, for example the drugs now used by the vast majority of people

being treated for HIV/AIDS; opening of a new research field, such as the role of mitochondrial DNA variation in evolution, disease, and aging; innovative team science resulting in novel paths to immunological suppression for organ transplantation; noteworthy leadership and creation of new scientific linkages; and initiation of clinical trials with dominant intellectual input from Emory investigators. Novel work of this nature is often recognized with invitations to join the Institute of Medicine, National Academy of Science, and other organizations honoring scientific achievements.

Initiative 1 is intended to foster a shift from exclusive reliance on financial metrics to identifying, quantifying, and nurturing the accomplishment of specific research achievements. The SOM proposes expansion of the newly formed MilliPub Club, which recognizes researchers who have published one or more papers from Emory that have been cited at least 1,000 times, to include faculty with smaller or larger numbers of citations as well as those whose publications took place before joining Emory. Researchers reaching these levels of recognition for their scholarly work will be both celebrated and given financial rewards. We will continue to track the citation indices of Emory faculty annually.

Goal 2: Develop selected research programs, both those in partnership with Emory Healthcare and other local institutions, and those with the potential for research achievements at the interface between different and/or complementary institutional and regional research strengths.

Within Goal#2, Initiative 2 focuses on the alignment and integration of research and clinical activities. Despite growing recognition of the value of research on health care delivery, including developing decision support for evidence-based care and resource utilization and enhancing the quality of patient outcomes, Emory's well-established clinical strengths offer enormous research potential that has not yet been fully attained. Taking advantage of this potential requires fostering a culture in which many if not all healthcare encounters become a potential research opportunity, with a larger percentage of patients involved in research and the incorporation of clinical research responsibilities into the regular duties of Emory Healthcare clinicians and staff. It also requires improved integrated planning of clinical research activities between the SOM and Emory Healthcare, and developing biomedical informatics and other systems to collect and analyze patient care data, resources now beginning to be put into place.

The third initiative seeks to strengthen interdisciplinary research across SOM departments and with other Woodruff Health Sciences Center (WHSC) schools, centers and external partner institutions, by investing in research at the interface of existing strengths. Emory has done well in the interdisciplinary arena, as the full plan outlines. Acceleration of our interdisciplinary approach, with an intensified focus on the interface between well-populated fields, requires honing strategic focus, removing barriers to cooperation and collaboration, and selectively deploying resources to programs deemed likely to produce high impact achievement. Trying to predict the most important areas for research risks both missing opportunities that will only become known several years into the future, and not taking full advantage of faculty creativity

and insight. For that reason, the major vehicle by which the SOM plans to encourage and support researchers who work at the interface is internal requests for applications (RFAs) to provide pilot funding for new ideas. Second-year funding would often depend on submission of grant proposals, with third-year funding dependent on actual matching funds.

Goal 3. Facilitate research by investing in growth and integration of the infrastructure needed to support research activities more efficiently. Our infrastructure deficiencies are, in part, a result of previous success, with research growth outpacing infrastructure growth, and in part the opportunities provided by new technology. The remaining four initiatives advance this goal, which will lay the foundation for the continued growth and vibrancy of Emory's research over the next decade. Initiative #4 focuses on building mechanisms to sustain research core facilities, providing both developing technologies and research service functions within core facilities, implementing sustainability planning to keep established cores innovative and competitive, and providing incentives and support for creation of value-added cores.

Initiative #5 focuses on improving information technology (IT) support for research. This initiative is of critical importance for faculty frustrated at spending time on management they would rather spend on research. It includes creation of the *Emory Commons Research Portal*, an integrated one-stop system and process that will enable researchers to manage their proposals and awards more efficiently. It will streamline the grant submission process by providing pre-populated templates for compliance, budget preparation, etc., compile tables and other resources, provide links to resources, allow monitoring of grant routing and post-award accounts and other processes designed to reduce effort for the researcher and lower the potential for compliance issues. This initiative also includes development of a space management system and an analytical data warehouse.

Initiative #6 plans for and develops new research space. Over the past three years many faculty recruitments have required researchers to operate in cramped quarters until new research space could be developed. Planned space additions already are nearly fully committed. Recruitment of senior, highly accomplished faculty who now express interest in Emory, and retention of home-grown, high impact faculty requires provision of new research space, as does our plan to develop new programmatic research areas. New space will be needed to drive partnerships with Children's, Georgia Tech, and the VA Medical Center, as well as development of a more effective partnership with Emory Healthcare (specifically additional dry lab space to underpin clinical trials). The plan identifies possible future footprints for research space and development in key areas, yielding 180,000 net assignable square feet (NASF) at a cost of approximately \$180 million. We believe it would be money well spent.

Initiative #7 provides organizational assistance for multidisciplinary grant applications. Such a program already exists with the SOM Office of Research but is not widely recognized among the faculty nor does it meet all needs. The plan calls for adding an employee with financial and organizational expertise and expanded help provided to all aspect of a team science application not directly related to the research proposal.

The final initiative recognizes that the research productivity of the faculty is significantly dependent on a pool of talented, inspired trainees that underpin faculty research programs. In order to maintain and further increase the current research portfolio, a strong commitment to increase the number of matriculating predoctoral and postdoctoral fellows is needed. Such an increase would be viewed by the faculty as essential. The SOM ranks among the top five best places to work for postdocs (The Scientist, 2010). This new plan calls for maintaining postdoctoral stipends at competitive levels based on NRSA guidelines, and recruitment of an additional 40 students per year, with appropriate enhancement of the infrastructure for their support.

What will it take to make this happen? The 2010 SOM Research Strategic Plan specifies needed dollars, but it also recognizes that cultural and environmental factors will determine the plan's success. Some factors are outside of our control -- the economy, changing trends in national NIH funding and healthcare reform, to name a few -- but others can and must be guided or nurtured in order for the SOM to reach our goal as a top-tier destination biomedical research institution with a major, ongoing impact on research and human health.

Aligned vision. We have never been so well positioned as we are today in the combination of leadership in research, clinical health care, and biomedical education, yet our greatest unmet opportunity rests within the increasing alignment of vision and incentives across these missions of the WHSC. To conduct high-impact research, and to ensure that discovery and research quickly impact the quality of the health care and training we provide, we must assure that vision, goals, strategic planning and incentives are aligned across WHSC to join the SOM and Emory Healthcare in a common respect for the value and role of research and discovery.

Collegiality within the SOM and across our partners. Collegiality is a hallmark of Emory's reputation and personality, as is our faculty's overall receptiveness to interaction and exchange, making Emory extremely conducive to interdisciplinary collaboration. The biomedical research and education community also benefits from a convergence in Atlanta and the University of highly complementary partner programs and institutions, bringing synergistic opportunities. In particular, the Atlanta Clinical and Translational Science Institute (ACTSI) joins Emory with the engineering and technology strengths of Georgia Tech and the health disparities and community outreach experience of Morehouse School of Medicine. The value of other unique partnering resources such as the Yerkes National Primate Research Center, Center for Disease Control and Prevention, GRA, GCC, and ACS cannot be underestimated. Our challenges will be to support this combination of collegiality and synergism while enabling even greater productivity.

Hope for the future. As a proxy for research excellence and growth, our rise in NIH funding and development of research facilities and successful research faculty over the past six years since the launch of the last research strategic plan have been outstanding by many measures. This is a credit to our leadership and to the faculty who have brought to the task enormous dedication, energy, commitment and vision. The SOM 2010 Research Strategic Plan is designed to take us to the next level, where the school now belongs and where its impact on humankind

can be maximized. With the faculty on board, given the resources they need; with the alignment of vision across the WHSC and University; with the support of our research and clinical partners; and with the help of those in the community who share our vision, we can get there – we can do those things that will improve human health through medical research.