

Vision for the BRC from the Organic Synthesis Perspective

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Synthetic organic chemists have the ability to replicate some of the most important molecules of living nature in the laboratory and apply their developed strategies and technologies to construct structural variations of them. Such molecules facilitate biology and medicine as biological tools and drug candidates for clinical development. In addition, by employing new chemical reactions and synthetic strategies that they discover and develop, synthetic chemists can synthesize myriad designed molecules for potential applications in many areas of science, technology and everyday life. This ability of organic synthesis makes this science central to a wide range of disciplines, including the biological sciences, bioengineering, and medicine as well as nanotechnology and material science. It is, therefore, not a surprise that the advent of organic synthesis in the nineteenth century quickly gave birth to the dye and pharmaceutical industries and continues to be pivotal to biomedical research and the drug discovery and development process today. Almost every major university prides itself in the presence of a strong organic synthesis component as a pillar for their teaching (organic chemistry) and research (making molecules) that impact decisively upon numerous other disciplines beyond chemistry. The recent initiative by the Provost to build organic synthesis at Rice was part of a vision to establish a strong pharmaceutical/biotechnology enterprise in Houston through fundamental and translational discoveries and inventions. The hiring of more synthetic organic chemists and chemical biologists is central to this vision.

Given the strength of the biomedical sciences at the Texas Medical Center, the potential for acquiring momentum in the pharmaceutical and biotechnology enterprises is enormous. Rice has a unique opportunity to participate in this initiative by establishing and sustaining a strong group of organic synthesis practitioners through the recruitment of at least two more faculty in this area to be situated in the BRC. The same is true for bioscientists and bioengineers. This initiative will result in numerous interdisciplinary collaborations and academic-industrial partnerships, both being on the rise in recent years in the US and throughout the developed world. The BRC, together with CPRIT, provides a vehicle to attract top notch investigators that will have a major impact on Rice as a research university.

Such a visionary move is expected to result in numerous benefits to Rice, the Texas Medical Center, and Houston in general. Among them are:

- Catalyze the establishment of strong and meaningful collaborations within the BRC and other Institutions at Rice and the Texas Medical Center.
- Attract academic-industrial partnerships.
- Catalyze the establishment of start-up biotech companies in Houston.
- Strengthen significantly education and research activities in the biosciences at Rice.
- Impact positively on nanotechnology, nanomedicine and material science at Rice and the Texas Medical Center.
- Prestige and ranking of Rice as a Research University will increase—both education and science will improve.

In summary, it is recommended that as part of a more global vision for the BRC, Rice invests in recruiting synthetic organic chemists as a means to promote both, further educational and research activities on campus and strengthen interdisciplinary collaborations and partnerships with the Texas Medical Center and the pharmaceutical/biotechnology industries likely to emerge in Houston.