South Dakota State University

Haarberg 3D Research Center

Director: Om Perumal, Ph.D. Department of Pharmaceutical Sciences, South Dakota State University (SDSU), Brookings, SD. Email: Omathanu.Perumal@sdstate.edu

Associate Director: Joshua Reineke, Ph.D. Department of Pharmaceutical Sciences, SDSU; Email: Joshua.Reineke@sdstate.edu

Lead Project PIs: Om Perumal, Ph.D. (SDSU), Hemachand Tummala, Ph.D. (SDSU), Gudiseva Chandrasekher, Ph.D. (SDSU), Xiangming Guan, Ph.D. (SDSU)

Key Personnel: Komal Raina, Ph.D. (SDSU); Craig Silvernagel, M.B.A., Ph.D. (SDSU); Fathi Halaweish, Ph.D. (SDSU), Rachel Willand Charnley, Ph.D. (SDSU), Wenfeng An, Ph.D. (SDSU), Radhey Kaushik (SDSU); Scott Wood, Ph.D. (SDSMT), Rajesh Sani, Ph.D. (SDSMT), Rick Swatloski, Ph.D. (TreMonti Consulting LLC), John Lee, M.D. (Avera Cancer Institute), Vance Thompson, M.D. (Vance Thompson Vision), Joy Alamgir, B.A in Comp. Sci. (ARIScience)

Private Sector Partners: Avera Cancer Institute; Vance Thompson Vision; SDIP LLC; Alumend, LLC; CarlZeiss AG, Germany; Academic Technology Ventures, Inc. Tremonti LLC; ARIScience; SHARPHub Consulting.

Executive Summary: The primary objective of the Haarberg Center for Drug, Disease and Delivery (3D center) is to develop an integrated Drug, Disease and Delivery (3D) framework and build University-Industry-Clinical (UIC) partnerships to accelerate the translation of new treatments for cancer and other diseases. The center is funded by the SDBOR. In 2022, the center received an estate gift from the Haarberg's family and the center was named after the benefactor. The vision of the Haarberg 3D research center is to become a nationally recognized and locally relevant center of excellence for drug development. The center's mission is to build the infrastructure, partnerships, and network for the translation and commercialization of new treatments for cancer and other diseases, vis-à-vis train the biomedical workforce, and create jobs to promote economic development in the State. The center will integrate the existing multidisciplinary strengths in Disease, Drug, and Delivery research at SDSU, SDSMT, and other Universities, clinical, and industry partners to develop and commercialize technologies for human and animal diseases. The goals of the center are described below.

Goal 1: Development and translation of new treatments for cancer and other diseases in humans and animals. The center will leverage the current IP portfolio to match industry needs to expedite the preclinical and clinical development of new treatments for cancer and other diseases in humans and animals.

Goal 2: Development of new IP/technologies for animal and human health. The center will issue RFPs to support pipeline projects and new projects in animal and human health. The seed grant program will be used to generate preliminary data for external funding, develop partnerships and advance research commercialization.

Goal 3: *Foster entrepreneurship and strengthen the biomedical/pharmaceutical workforce in the state.* The center will conduct training workshops for faculty, post-docs, and graduate students in the areas of drug development, regulatory approval, intellectual property, and entrepreneurship.