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Sponsor: National Institute of Dental and Craniofacial Research (NIDCR)
Dates: April 1, 2011-March 31, 2013
Amount: \$99,680

NRSA (National Research Service Award) Post-Doctoral Fellowship
“Rac GTPase Signaling During Embryonic Salivary Gland Branching
Morphogenesis”

Xerostomia (or ‘dry mouth’) results from a lack of sufficient saliva produced by salivary glands and is a common feature in a majority of people suffering from salivary gland diseases such as Sjögren’s syndrome, patients undergoing radiation treatment for head and neck cancers or as an undesirable side effect of thousands of medications. Currently no cure exists for xerostomia and modern treatments are temporary and inadequate. Salivary gland tissue replacement or regeneration therapies can provide a more long-term solution. This postdoctoral NRSA fellowship award funds research that will advance basic scientific knowledge of the molecular mechanisms by which an essential signaling protein, Rac GTPase, regulates critical developmental processes such as branching morphogenesis of the salivary glands and the establishment of tissue polarity, an indispensable requirement for unidirectional and controlled flow of saliva. This knowledge will further elucidate novel roles for Rac in promoting salivary gland cell organization and polarization on artificially engineered biocompatible 3-dimensional nanofiber scaffolds, towards the future goal of generating a secretory artificial salivary gland as a viable therapeutic strategy for patients suffering from xerostomia.