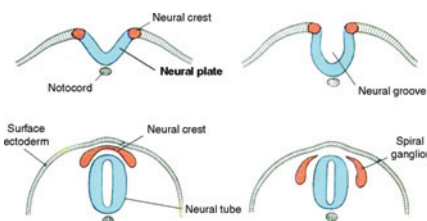


Partha Mukhopadhyay, Ph.D.

Assistant Professor

Department of Molecular,
Cellular & Craniofacial Biology
School of Dentistry



Scholarly Activities:

Dr. Mukhopadhyay's principal research focus involves investigation of the role and interaction of various peptide growth factors and transcriptional regulators, whose collective interplay can regulate neural tube and neural crest development, midfacial ontogenesis and palatogenesis. His specific research interests are to examine the role of the nuclear transcriptional regulators, coactivators and corepressors in craniofacial growth and anomalies, to analyze the role of growth factors like TGF β s and BMPs in orofacial development as well as characterization of the various transcription factors and their role in normal orofacial growth. He has used DNA microarray technology to establish comprehensive "mRNA and microRNA expression profiles" of developing murine orofacial tissue and of developing neural tube to identify important candidate microRNAs and their targets - regulating palatogenesis and neural tube development, respectively.

His current research projects for which he has been awarded NIH funding investigate, employing a combined bioinformatic and molecular approach: (1) the interaction between differentially-expressed miRNAs and their target mRNAs, as well as to define the role of those miRNAs in regulating key processes required for normal orofacial and neural tube development (2) the epigenetically-regulated, differentially expressed candidate genes central to normal orofacial development and also, to identify and characterize the differentially-methylated genomic regulatory elements governing the expression of such candidate genes.

His additional research projects investigate: (1) Developmental neurotoxicity of prenatal arsenic and environmental tobacco smoke exposure (2) Epigenetics and Fetal Alcohol Syndrome.

Grants:

Role: Co-PI

Co-PI: Guy Brock

Co-I: Ratnam Seelan; Ted Kalbfleisch

Title: "Integrated Analysis: Epigenetic Regulation of Gene Expression During Orofacial Development."

Funding Agency: NIH/NIDCR

Direct Costs Funded: \$175,000

Role: Co-I / Subproject Director

PI: Robert M Greene

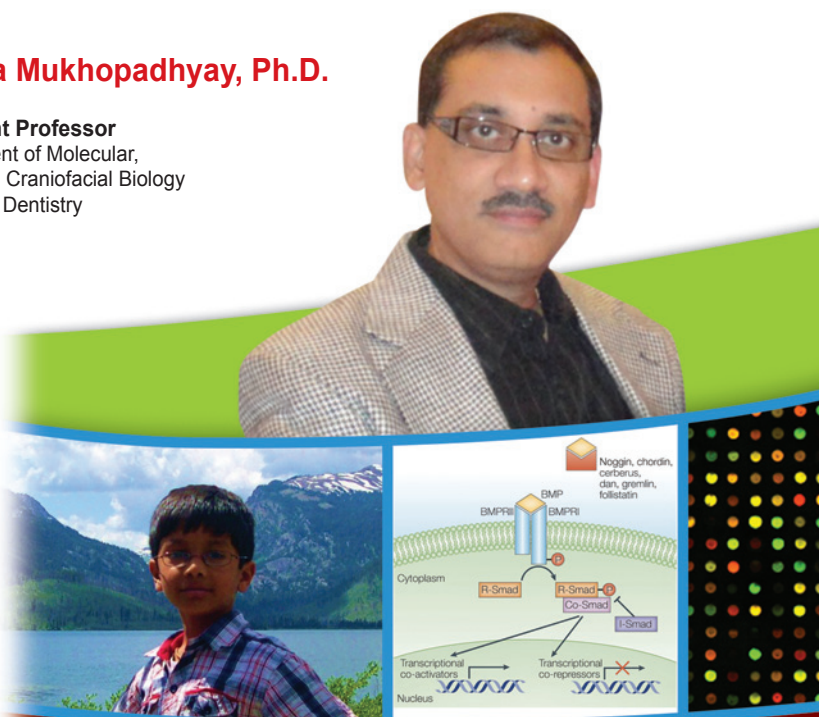
Co-I / Subproject Director: Guy Brock

Title: "Molecular Determinants of Developmental Defects" - Center of Biomedical Research Excellence (COBRE)

Subproject Title: "Integrated Analysis of RNA Expression During Orofacial Development."

Funding Agency: NIH P20 NIH/GM103453

Subproject Direct Costs Funded: \$175,000



Publications (2013-2014):

Warner DR, **Mukhopadhyay P**, Brock G, Webb C, Pisano MM, Greene RM. MicroRNA expression profiling of the developing upper lip in mice. *Development, Growth & Differentiation* 56:434-447 (2014).

Liu Y, **Mukhopadhyay P**, Pisano MM, Lu X, Huang L, Lu Q, Dean DC. Repression of Zeb1 and hypoxia cause sequential mesenchymal-to-epithelial transition and induction of aid, Oct4, and Dnmt1, leading to immortalization and Multipotential reprogramming of fibroblasts in spheres. *Stem Cells*. 3:1350-1362 (2013).

Seelan RS, Warner DR, **Mukhopadhyay P**, Andres SA, Smolenkova IA, Wittliff JL, Pisano M, Greene RM. Epigenetic analysis of laser capture microdissected fetal epithelia. *Anal Biochem*. 442:68-74 (2013).

Mukhopadhyay P, Rezzoug F, Kaikaus J, Greene RM, Pisano MM. Alcohol modulates expression of DNA methyltransferases and methyl CpG-/CpG domain-binding proteins in murine embryonic fibroblasts. *Reprod Toxicol*. 37:40-48 (2013).

Seelan RS, Appana SN, **Mukhopadhyay P**, Warner DR, Brock GN, Pisano MM, Greene RM. Developmental profiles of the murine palatal methylome. *Birth Defects Res A Clin Mol Teratol*. 97:171-186 (2013).

Seelan RS, **Mukhopadhyay P**, Warner DR, Webb CL, Pisano MM, Greene RM. The epigenetics of Sox4 regulation in murine palatogenesis. *Epigenomics*. 5:131-146 (2013).

Brock GN, **Mukhopadhyay P**, Pihur V, Webb C, Greene RM, Pisano MM. MmPalateMiRNA, an R package compendium illustrating analysis of miRNA microarray data. *Source Code Biol Med*. 8(1):1, (2013).

External Professional Activities (2013-2014):

Ad-hoc reviewer:

Reproductive Toxicology
Journal of Dental Research

Grant Reviewer: SBIR/STTR Phase Double Zero grant, Kentucky Science & Engineering Foundation.