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Pamela C. Yelick, PhD,

Tufts University,
Department of Orthodontics

Pamela Yelick is an internationally recognized leader in dental tissue engineering and craniofacial development. She will provide insight on **Tissue Interactions / Tissue Interfaces** in Dentistry at this year's NJ Symposium on Biomaterials Science on November 9th. Her current research focus is on the creation of full-scale, functional bioengineered alveolar bone and tooth constructs in order to repair human craniofacial defects. Through the use of zebrafish models, Dr. Yelick and her team believe that novel and effective therapies could soon be designed to address human mineralized tissue development and disease.

Pamela Crotty Yelick is a professor at Tufts University, Boston MA, where she is the Director of the Division of Craniofacial and Molecular Genetics in the Department of Oral and Maxillofacial Pathology. Her research focuses on manipulating mammalian postnatal dental stem cells for whole tooth tissue engineering applications, and exploiting the experimental strengths of the zebrafish model for craniofacial and skeletal development and tooth regeneration.

The Yelick Lab is working to identify effective methods to bioengineer functional dental tissues and bioengineered replacement whole teeth of specified size and shape. Their early studies demonstrated that post-natal human, pig, and rat tooth bud cells, seeded onto biodegradable polyester scaffolds and implanted into animal hosts, formed highly organized dental tissues and small tooth crowns. The successful creation of clinically relevant, 3D biomimetic tooth and alveolar bone constructs has the potential to effectively repair a variety of human craniofacial defects.

Dr. Yelick's lab performed a forward genetic chemical mutagenesis screen in zebrafish to identify more than 20 novel mineralized craniofacial and tooth mutants in the zebrafish. The identification and functional characterization of novel genes directing mineralized tissue development and disease has the potential to facilitate the design and implementation of effective clinical therapies to treat humans afflicted with a variety of skeletal and craniofacial dysplasias.

Dr. Yelick received her B.A. in Biochemistry from Smith College, Northampton MA in 1979, and her Ph.D. in Molecular Biology from Tufts University in 1989. She received her postdoctoral training at the Dana Farber Cancer Institute, Boston MA and was a Research Associate at the Harvard Biological Laboratories, Cambridge MA. As a leader and acclaimed researcher with over 80 peer-reviewed basic research publications, more than a dozen reviews, and over 100 abstracts since 2000, she is a much sought after presenter and panelist. She has received national and international recognition for her research on dental tissue and whole tooth tissue engineering, and has participated in more than 175 Invited Speaker Lectureships. She is currently serving as the elected Treasurer of the American Association for Dental Research.

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