Based in Alexandria, Va., the AADR is a non-profit organization that boasts some 4,000 members in the United States and is the largest division of the International Association for Dental Research (IADR).

The AADR’s mission is (1) to advance research and increase knowledge for the improvement of oral health; (2) to support and represent the oral health research community; and (3) to facilitate the communication and application of research findings.

Approximately 25 percent of the 1,500 abstracts submitted will also be oral presentations and the remainder can be viewed in poster format.

Aside from the oral sessions and poster presentations, the meeting hosts advocacy events, a distinguished lecture series and research group-sponsored symposia as well as networking opportunities and other events.

Distinguished lecture series

The Distinguished Lecture Series features three top scientists:

- David Sidransky, Johns Hopkins University, Baltimore, Md.
- Kenneth Yamada, NIDCR/NID, Bethesda, Md.
- Elaine Fuchs, The Rockefeller University, New York, N.Y.

David Sidransky

March 4, 9:45–10:30 a.m.

Molecular Markers in Personalized Cancer Diagnosis and Treatment

We aimed to personalize head and neck cancer treatment by generating individual personalized tumor grafts generated from a patient's own tumor. Tumor fragments were implanted into nude mice and propagated as tumor fragments to generate cohorts of homogeneously growing tumors suitable for drug treatments. In total, we evaluated 159 different anticancer agents alone or in combination, spanning all currently known classes of anticancer agents and mechanisms of action. Recommended treatments were administered to 10 affected individuals, which resulted in a 100 percent correlation of both positive and negative predictive values. The predictive nature of the personalized models and easy access to tissue support their use in drug development and the discovery of new predictive biomarkers.

Kenneth Yamada

March 5, 9:45–10:30 a.m.

Cell and Tissue Dynamics in Development and Regeneration

Recent advances in imaging, three-dimensional tissue culture and gene expression analysis are revealing how tissues undergo dynamic remodeling in processes as diverse as organ formation and tumor invasion.

The mechanisms responsible for these processes include cell adhesion, migration, contractility, signaling and local gene expression, which can now be visualized or quantified directly.

For example, as a result of these advances, we can now visualize mechanisms of salivary gland development involving dramatic tissue rearrangements orchestrated by a variety of matrix and regulatory proteins and genes.

The new tools and approaches developed for these studies should be applicable to any field where tissues are remodeled by movements of molecules and cells.

Elaine Fuchs

March 6; 10:45–11:30 a.m.

Epithelial Stem Cells: Biology and Clinical Promise

Elaine Fuchs is the Rebecca C. Lancefield Professor in Mammalian Cell Biology and Development at The Rockefeller University. She is also an investigator at the Howard Hughes Medical Institute. Fuchs has published more than 250 papers and is internationally known for her research in skin biology and associated human genetic disorders, which include skin cancers and life-threatening genetic syndromes such as blistering skin disorders.

Fuchs’ current research focuses on the molecular mechanisms that underlie how multipotent stem cells respond to external cues, change their program of gene expression, exit their niche and adopt specific fates to make the epidermis, sebaceous glands and hair follicles of the skin.

In tackling the biology of normal tissue homeostasis, Fuchs has begun to explore how this process changes during wound repair and in human disorders, e.g., cancers, where tissue development goes awry.

Fuchs’ lecture will focus on stem cells of the skin and their promise for regenerative medicine.