



Controlled release of growth factors from xenogeneic, acellular extracellular matrix scaffolds for vocal fold reconstruction

Dr Roger W. Chan

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Room 750, Meng Wah Complex, HKU

2:30 – 4:00 pm

Chair: Dr Lawrence Ng

Abstract:

Xenogeneic, acellular extracellular matrix (ECM) scaffolds have been found to facilitate constructive tissue remodeling in many tissue engineering applications. Growth factors like hepatocyte growth factor (HGF) are known to have strong anti-fibrotic effects in connective tissue ECM. The potential of a bovine ECM-based acellular scaffold as a timed-release system for delivering HGF in vivo was investigated. With a rat model of laryngeal injury, bilateral wounds were created in the posterior vocal folds, with HGF-loaded ECM scaffolds implanted unilaterally, and scaffolds without HGF implanted contralaterally. Results demonstrated a gradual, sustained release of HGF for at least 7 days in vitro. In rat vocal folds implanted with HGF-loaded scaffolds, fewer inflammatory cells were observed after surgery. Scaffold implants were apparently degraded by 3 months, with no evidence of fibrosis or calcification. These data supported the promise of the bovine ECM scaffold for the exogenous delivery of growth factors in vivo.

About the speaker:

Dr Roger Chan is Associate Professor of Otolaryngology - Head and Neck Surgery, and Biomedical Engineering at the University of Texas Southwestern Medical Center in Dallas, Texas. He completed his B.Sc. in Speech and Hearing Sciences at the University of Hong Kong, and his Ph.D. in Communication Sciences and Disorders at the University of Iowa. Dr. Chan's research interests include the acoustics and biomechanics of voice production, the development of biological implants for laryngeal surgery, and bioengineering of the larynx. His work has been supported by the U.S. National Institutes of Health. His publications have appeared in peer-reviewed journals of multiple disciplines, with a rather significant impact (an H-index of 23 according to the Web of Science). Dr. Chan has also served on multiple panels reviewing grant proposal applications for national funding agencies around the world.

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