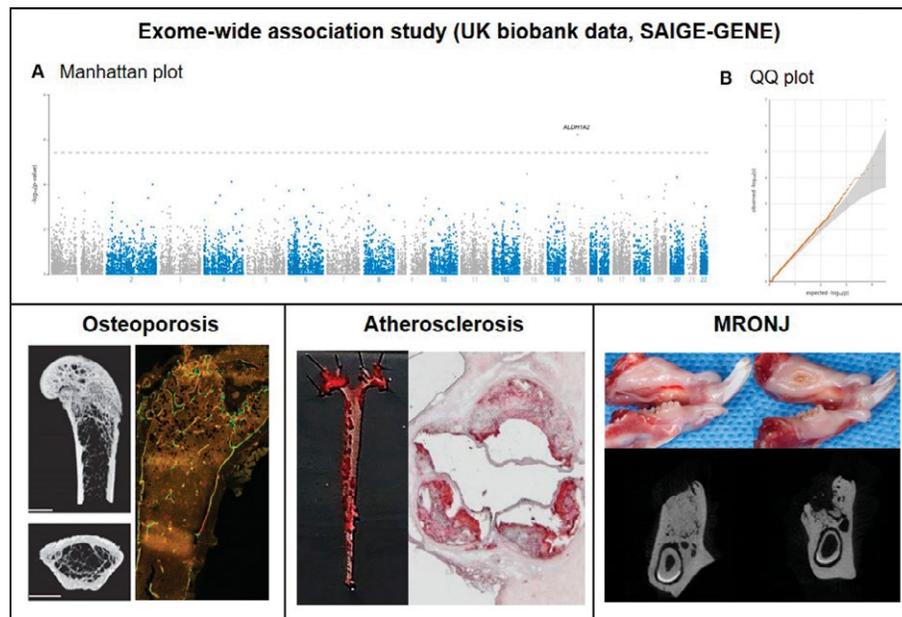




RESEARCH OVERVIEW

I am oriented toward translational research, with a focus on bone and cholesterol metabolism. Translational research aims to translate findings from basic research into outcomes that directly benefit humans. To identify pathogenic genes and their mechanisms in humans, I conduct genome-wide or exome-wide association studies using big biobank data, followed by the recapitulation of target gene mutations in vitro and in vivo using the CRISPR/Cas9 technique. The primary pathogenic models I am working on include osteoporosis, atherosclerosis, and medication-related osteonecrosis of the jaw (MRONJ).



RESEARCH CONTENTS

1. Identification of pathogenic genes by big biobank data analysis and elucidation of their mechanisms by in vitro/in vivo CRISPR/Cas9 techniques
2. Regulation of cholesterol metabolism in bone and cardiovascular disease
3. Development of therapeutic strategies for medication-related osteonecrosis of the jaw(MRONJ)

[Key words] Cholesterol metabolism; Bone biology; Atherosclerosis; Medication-related osteonecrosis of the jaw (MRONJ); Big data analysis; Genome wide association study

KEY PUBLICATIONS

1. Kim SJ, Jeong YT, Jeong SR, Park M, Go HS, Kim MY, et al. Neural regulation of energy and bone homeostasis by the synaptic adhesion molecule Calsyntenin-3. *Exp Mol Med.* 2020;52(5):793-803.
2. Kim SJ, Piao Y, Lee MG, Han AR, Kim K, Hwang CJ, et al. Loss of Sirtuin 6 in osteoblast lineage cells activates osteoclasts, resulting in osteopenia. *Bone.* 2020;138:115497.
3. Kim SJ, Ha YD, Kim E, Jang W, Hwang S, Nguyen T, et al. Dynamics of alveolar bone healing after the removal of orthodontic temporary anchorage devices. *J Periodontal Res.* 2019;54(4):388-95.