**Introduction**

Renal cell carcinoma (RCC) is an adenocarcinoma of the tubules of the kidney. It accounts for 3% of all cancers but 90% of kidney cancers. The treatments for RCC include surgical kidney removal, chemotherapy, radiation, and cryotherapy. Most commonly, RCC metastasizes to the lungs, bone, liver, and lymph nodes. RCC bone metastasis (RCCBM) can impair patient mobility and lead to worse outcomes.

**Methods cont.**

*RT-qPCR and DNA gel electrophoresis* will be done using four sets of primers to detect relative mRNA expression of BIGH3 in K7 cells, an immunocompetent mouse RCC cell line.

**Ex vivo study**

Cortical bone fragments will be taken from the femur and tibia of two C57BL6 mice. **K7 cells with and without a luciferase tomato (LT) gene will be seeded on the bone fragments** and placed in DMEM/F12, containing 5% p/s, 0.5% FBS, and NaHCO3 on a low-attachment 96-well plate. IVIS Lumina imaging will be used to detect the amount of K7/LT cells in each well.

**Ex vivo study cont.**

In vivo study

SCID mice will be injected with K7 and K7/LT cells intracardially. After aggressive metastatic cancer is detected, the mice will be euthanized and bone marrow will be collected and cultured to grow bone-derived K7 cells. IVIS Lumina imaging will be used to detect the amount and location of K7/LT cells in the mice. The bone-derived K7 cells will be further selected using the intracardiac injection in SCID mice to get cells that specifically target bone. The specific bone-derived K7 cells will then be administered to immunocompetent C57BL6 mice as the new mouse model for RCCBM.

**Potential Results and Conclusions cont.**

- We anticipate the K7 cells to migrate mostly to the lungs, liver, spine, and femur in the live mice.
- The future use of K7 cells in the RCCBM immunocompetent mouse model will depend on how rapidly the mice acquire aggressive metastatic cancer.

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**Reference**