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Ex vivo mouse kidney slice experiment

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Wakana Shoda¹, Naohiro Nomura², Fumiaki Ando², Hideaki Tagashira³, Takahiro Iwamoto³, Akihito Ohta², Kiyoshi Isobe², Takayasu Mori², Koichiro Susa², Eisei Sohara², Tatemitsu Rai², Shinichi Uchida²

¹Department of Nephrology, Graduate School of Medical and Dental Sciences, Tokyo Medical and Dental University;

²Department of Nephrology, Graduate School of Medical and Dental Sciences, Tokyo Medical and Dental University;

³Department of pharmacology, Faculty of Medicine, Fukuoka University

Wakana Shoda

ABSTRACT

This protocol was used in a manuscript "Sodium-calcium exchanger 1 is the key molecule for urinary potassium excretion against hyperkalemia."

MATERIALS

Hank's Balanced salt Solution

110 mM NaCl
 3 mM KCl
 1.2 mM MgSO₄
 1.8 mM CaCl₂
 4 mM Na acetate
 1 mM Na citrate
 6 mM D-glucose
 6 mM L-alanine
 1 mM NaH₂PO₄
 3 mM Na₂HPO₄
 25 mM NaHCO₃

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- 1 Mice were deep anesthetized.
- 2 Make an incision then cut the skin from the bottom to the top of the mice followed the abdominal line with the round side of the scissors.
- 3 Cut the lateral skin to give free access to the abdomen.
- 4 With your finger, displace the intestine to the right, who should see the kidney.
- 5 Clip the sternum with the curve forceps, cut the ribs, do not cut the lungs, give access to the heart by moving the forceps. The heart should beat.
- 6 Pick the needle (22 gauge) through the right ventricle.

- 7** Cut the right auriula and perfused at 17 ml/min with Hank's balanced salt solution (HBSS) pH 7.4 at 37°C equilibrated with 5%CO₂/95%O₂
- 8** Perfuse, until the kidneys are clear of blood, the kidneys appear green-white.
- 9** Immediately, they were removed. Take out the capsule, cut the kidney in pieces of 3 to 5 mm thick.
- 10** Put these pieces in bubbling buffer at room temperature. Start immediately to cut thinner slices (approximately 0.5 mm) using a micro slicer (Natume Seisakusho CO., Ltd, Tokyo, Japan). Cut from the cortex to the papilla in order to avoid kidney damages.
- 11** The slices were incubated at room temperature for 20 min in equilibrated HBSS for recovery before treatment.
The tissue slice should always be in bubbling solution.
- 12** Hold the tube in the 20 ml scintillation vial . The vial should contain 10 ml of drug solution (3 ml is the minimum).
- 13** The slices will be treated with drugs. Treatment should be in bubbling solution at room temperature.
- 14** After treatment, the slices were snap frozen in liquid nitrogen.