

# Long Chain Acyl-CoA Synthetase 1 (ACSL1) in the Kidney

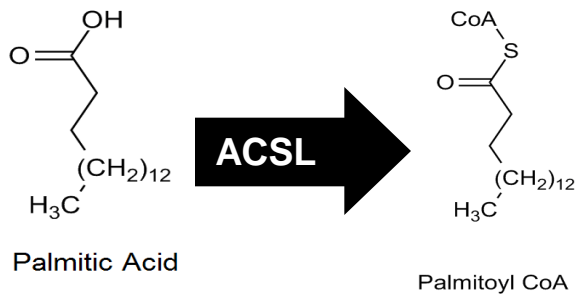
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# Acyl-CoA Synthetase (ACS)

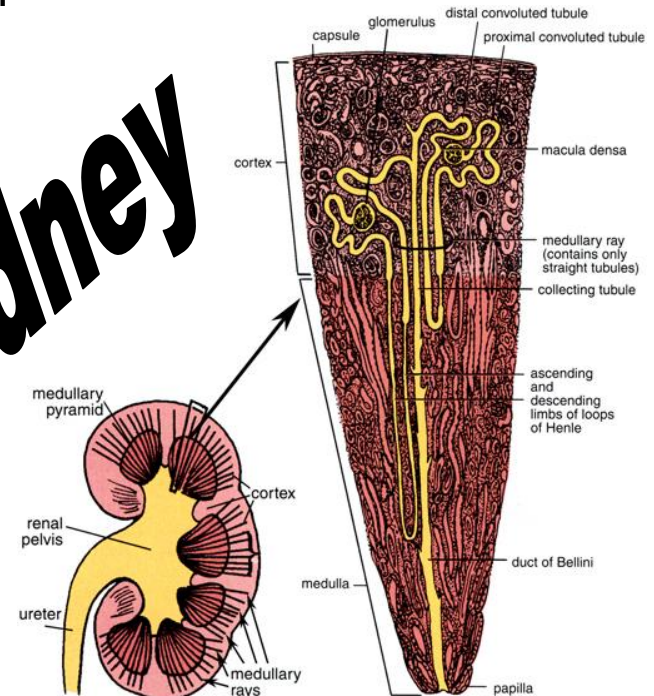


- Long Chain Acyl-CoA Synthetase (ACSL) is an important enzyme in lipid metabolism
- ACSL catalyzes the acylation of fatty acids
- Evidence indicates ACSL1 is important in beta-oxidation

- Beta-oxidation is the main energy source for transporters in the renal cortex, but is less important in the medulla

**If ACSL1 is knocked out in the kidney and ACSL1 is important in beta-oxidation, there should be a greater decrease in total ACS activity in the cortex than in the medulla**

**Kidney**



# Procedure and Results

- ❑ Mice kidneys were dissected to separate the cortical and medullary layers
- ❑ Samples were homogenized and protein density was determined
- ❑ ACS activity was measured at room temperature using radiolabeled  $^{14}\text{C}16:0$  (palmitic acid)

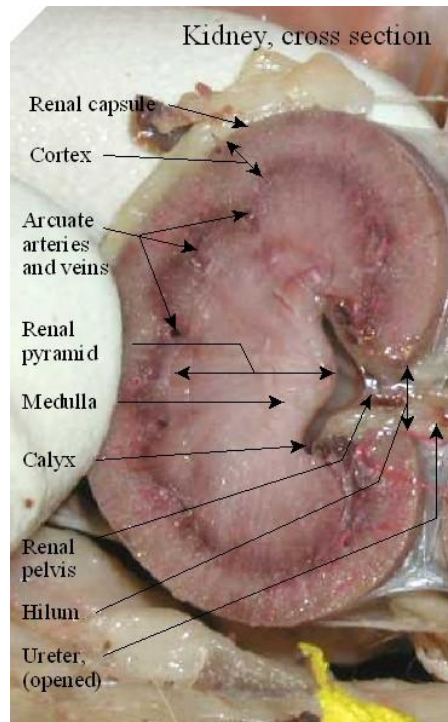
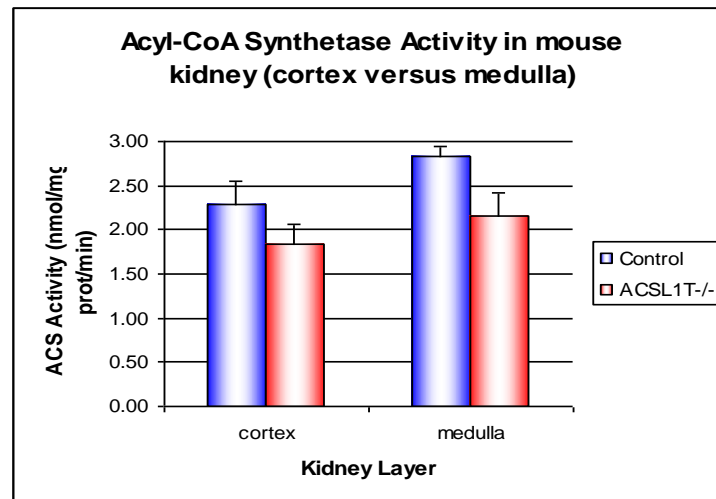


Image of cat kidney cross-section



- ❑ No significant decrease was seen in ACS activity for knockout mice (ACSL1T-/-)
- ❑ ACSL1 may play a different role in kidney lipid metabolism