

### **Following the Water in Photosynthesis**

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In 1941 Samuel Ruben and Martin Kamen used water labeled with the heavy isotope  $^{18}O$  to try to figure out what role the oxygen in water played in photosynthesis. They labeled the O in  $H_2O$ , so they could follow it through the photosynthetic process and determine where it ended up – in sugar or in the  $O_2$  released as a byproduct of photosynthesis. Their investigations confirmed that the  $O_2$  released in photosynthesis does come from the water molecule, as proposed by van Niel. The O in  $C_6H_{12}O_6$  (sugar) did not come from the water molecule. Later investigations revealed that only the hydrogen in the sugar comes from water.

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