1. Draw  $\alpha$ -D-glucose.

2. Draw lactate.

- 3. How many total C-C and C-H bonds are present in glucose?
- 4. How many total C-C and C-H bonds are present in two lactates?
- 5. Based only on bond counting, how many redox reaction steps of metabolism do you expect to find between glucose and lactate.
- 6. Name the enzymes that catalyze the redox reaction steps of metabolism between glucose and lactate.
- 7. Explain the observed difference between your answers to #5 and #6.