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Moving Toward Biochemistry Concept Inventories

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Abstract

Concept inventories (CIs) are useful instruments for diagnosing student misconceptions and determining their distributions. The Force Concept Inventory has been widely adopted and used to reform physics education; although several CIs have been developed in general chemistry, the field of biochemistry is not yet served by similar assessment instruments. Our current research focuses on developing biochemistry concept inventories (BCCIs) along three themes: (1) structure and function of biomolecules, (2) properties of amino acids and (3) reversible equilibrium. These BCCIs are grounded in prior work involving the use of pre-assessment instruments to map undergraduate biochemistry students' responses to specific misconceptions. We will present the findings of a multi-site study, which used these instruments to assess the prevalence of students' biochemical misconceptions. The development and use of BCCIs should lead to significant improvements in the way biochemical instruction is conducted in the classrooms of the future.