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(54) Title: METHODS FOR COMPARING RELATIVE FLUX RATES OF TWO OR MORE BIOLOGICAL MOLECULES *IN VIVO* THROUGH A SINGLE PROTOCOL

(57) Abstract: The invention relates to techniques for measuring and comparing relative molecular flux rates of different biological molecules by administering isotope-labeled water to one or more tissues or individuals and comparing the molecular flux rates of two or more biological molecules, including biological molecules in different chemical classes. The methods find use in several applications including diagnosing, prognosing, or monitoring a disease, disorder, or condition, the *in vivo* high-throughput screening of chemical entities and biological factors for therapeutic effects in various disease models, and the *in vivo* high-throughput screening of chemical entities and biological factors for toxic effects.



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