

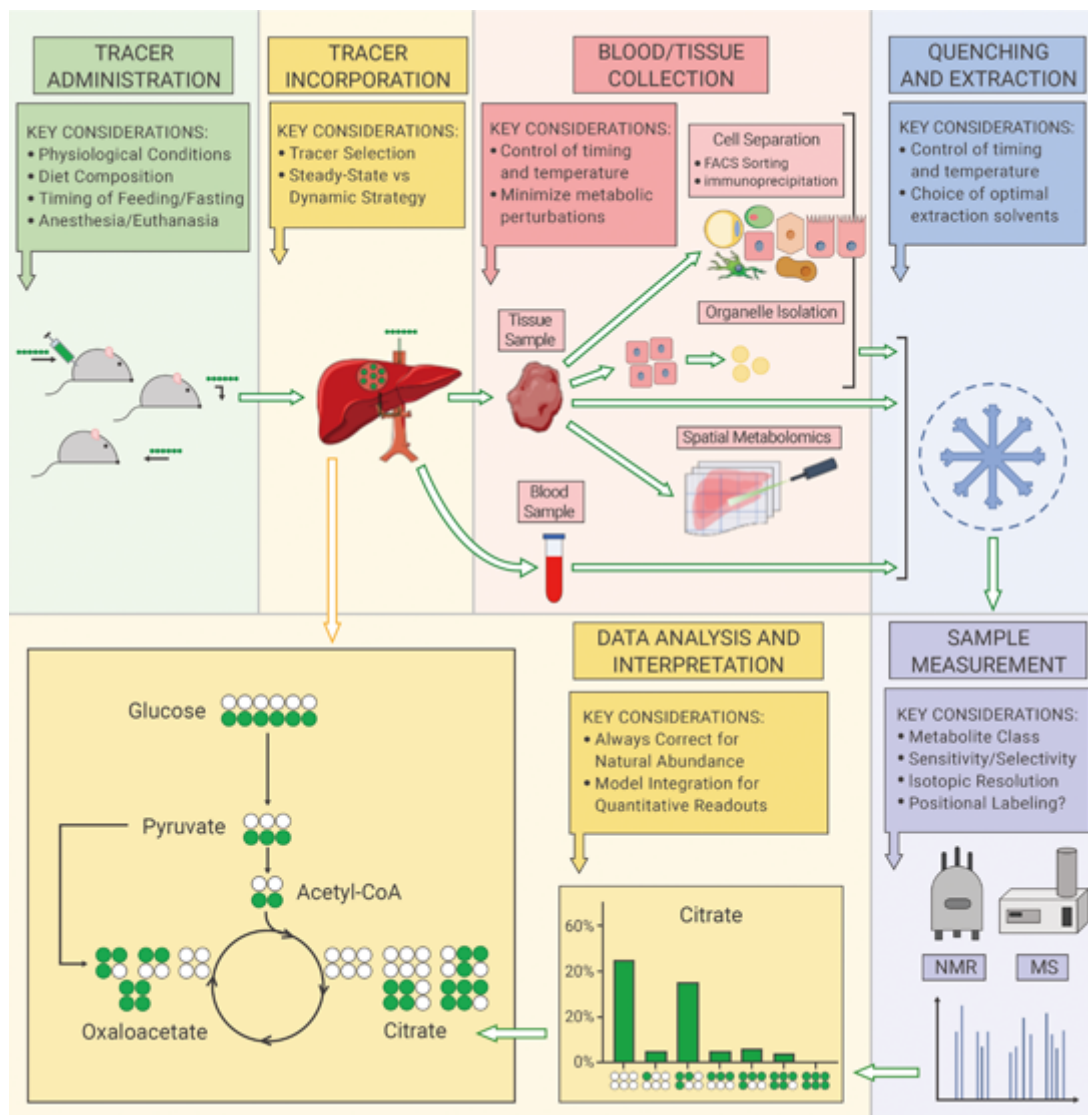
Stable Isotope-Labeled Inhibitors



Stable isotope-labeled inhibitors: one or more atoms are replaced by stable isotopic atoms in the molecular structure of the inhibitor, such as ^1H , ^{12}C , ^{14}N , and ^{16}O substituted by $\text{D}(^2\text{H})$, ^{13}C , ^{15}N , and ^{17}O & ^{18}O respectively. Due to the specificity of stable isotope atoms, they can be used for *in vivo* and *in vitro* absorption, distribution, metabolism, and excretion (ADME) studies, etc.

By introducing stable isotope-labeled inhibitors, it becomes possible to trace precise metabolic pathways and metabolites within organisms. This valuable information provides a foundation for studying synthetic biology, understanding disease pathogenesis, and unraveling the mechanisms of drug actions.

How do you screen for stable-isotope labeled inhibitors for *in vivo* experiments? Please refer to the summary provided by Professor Juan Fernández-Garcí *et al* as showed below^[1].



Outline of the different steps involved in an *in vivo* stable-isotope tracing experiment^[1].

CS offers an extensive range of stable isotope-labeled inhibitors readily available in stock, and we also provide custom synthesis services to meet your specific research needs.

Product Name	Research Area	Description
Ribociclib-d₆ hydrochloride	Cancer	Ribociclib hydrochloride is a highly specific CDK4/6 inhibitor.
S-Adenosyl-L-methionine-d₃	Cancer Inflammation/Immunology Neurological Disease	S-Adenosyl-L-methionine is an important orally active methyl group donor.
SN-38-d₃	Cancer	SN-38 is an active metabolite of the Topoisomerase I inhibitor Irinotecan.
IDH1 Inhibitor 7-d₂	Cancer	IDH1 Inhibitor 7 is an IDH1

inhibitor.

Quetiapine-d₄ hemifumarate

Neurological Disease

Quetiapine is a 5-HT receptors agonist with antidepressant and anxiolytic effects.

Lumacaftor-d₄

Inflammation/Immunology

Lumacaftor is a CFTR modulator.

Ibuprofen-d₃

Inflammation/Immunology

Ibuprofen is a COX-1 and COX-2 inhibitor.

Nemonoxacin-d₃

Inflammation/Immunology

Nemonoxacin can be used in the study of bacterial infections such as community-acquired pneumonia.

Dabigatran-d₄

Cardiovascular Disease

Dabigatran is a reversible, potent, competitive direct thrombin inhibitor.

Elexacaftor-d₃

Inflammation/Immunology

Elexacaftor is a modulator of cystic fibrosis transmembrane conductance regulator.

To access our comprehensive catalog of Isotope-Labeled Compounds, kindly visit us at the following link:

https://www.chemscene.com/Isotope_Compounds.shtml

Reference:

[1] *Trends Biochem Sci.* 2020 Mar;45(3):185-201.

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