

SADA Technology Platform

Liquid Radiation™

Brian H. Santich, PhD

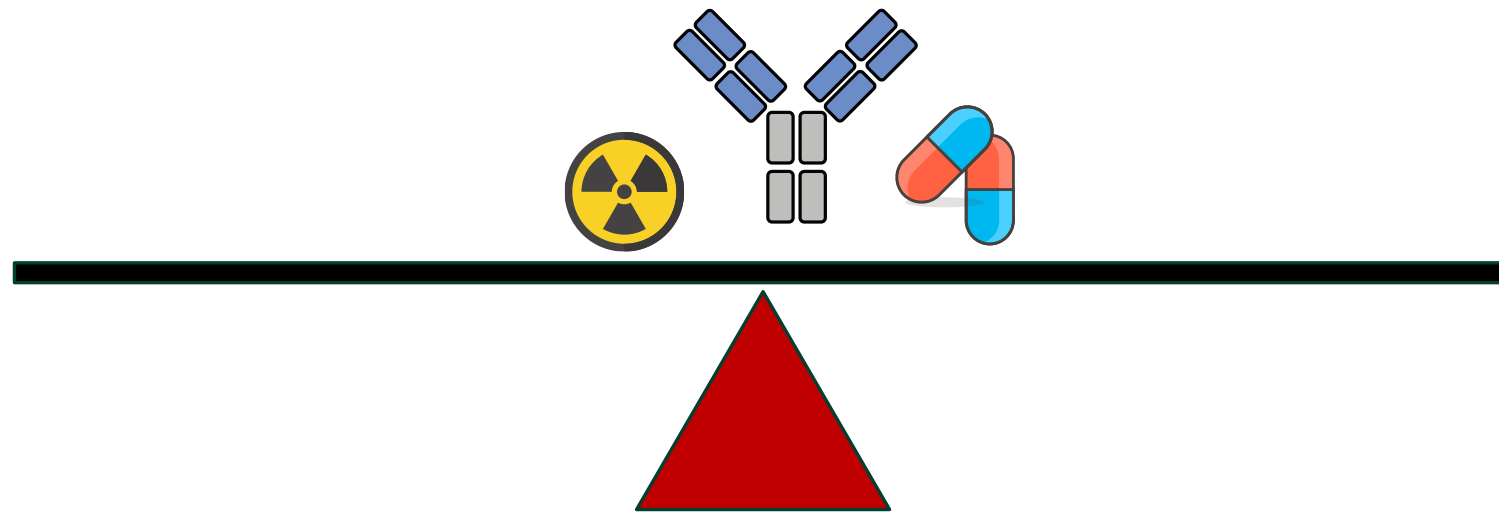
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This presentation contains forward-looking statements within the meaning of the US Private Securities Litigation Reform Act of 1995. The forward-looking statements involve substantial risks and uncertainties. All statements, other than statements of historical facts, contained in this presentation, including statements regarding our strategy, future operations, future financial position, future revenue, projected costs, prospects, plans and objectives of management and expected market growth are forward-looking statements. The words “anticipate,” “believe,” “continue,” “could,” “estimate,” “expect,” “intend,” “may,” “might,” “plan,” “potential,” “predict,” “project,” “should,” “target,” “would” and similar expressions are intended to identify forward-looking statements, although not all forward-looking statements contain these identifying words. Such statements include, but are not limited to, statements about regulatory approvals, clinical trial timing and plans, the achievement of clinical and commercial milestones, future financial and operating results, business strategies, market opportunities, financing, and other statements that are not historical facts. Our product candidates and related technologies are novel approaches to cancer treatment that present significant challenges. Actual results may differ materially from those indicated by such forward-looking statements as a result of various factors, including but not limited to: risks associated with the Company's development work, including any delays or changes to the timing, cost and success of our product development activities and clinical trials including if we encounter difficulties enrolling patients in our clinical trials; the risks of delays in FDA and/or EU approval of our drug candidates or failure to receive approval; the risks related to commercializing any approved new pharmaceutical product including the rate and degree of market acceptance of our product candidates; development of our sales and marketing capabilities and risks associated with failure to obtain sufficient reimbursement for our products; our inability to enter into collaboration or alliances with partners; risks associated with protection of our intellectual property rights; and other risks and uncertainties affecting the Company including those described in the "Risk Factors" section included in documents the Company files from time to time with the Securities and Exchange Commission. Any forward-looking statements contained in this presentation speak only as of the date hereof, and the Company undertakes no obligation to update any forward-looking statement, whether as a result of new information, future events or otherwise.

This presentation includes statistical and other industry and market data that we obtained from industry publications and research, surveys and studies conducted by third parties or us. Industry publications and third-party research, surveys and studies generally indicate that their information has been obtained from sources believed to be reliable, although they do not guarantee the accuracy or completeness of such information. All of the market data used in this presentation involves a number of assumptions and limitations, and you are cautioned not to give undue weight to such estimates. While we believe these industry publications and third-party research, surveys and studies are reliable, we have not independently verified such data. The industry in which we operate is subject to a high degree of uncertainty, change and risk due to a variety of factors, which could cause results to differ materially from those expressed in the estimates made by the independent parties and by us.

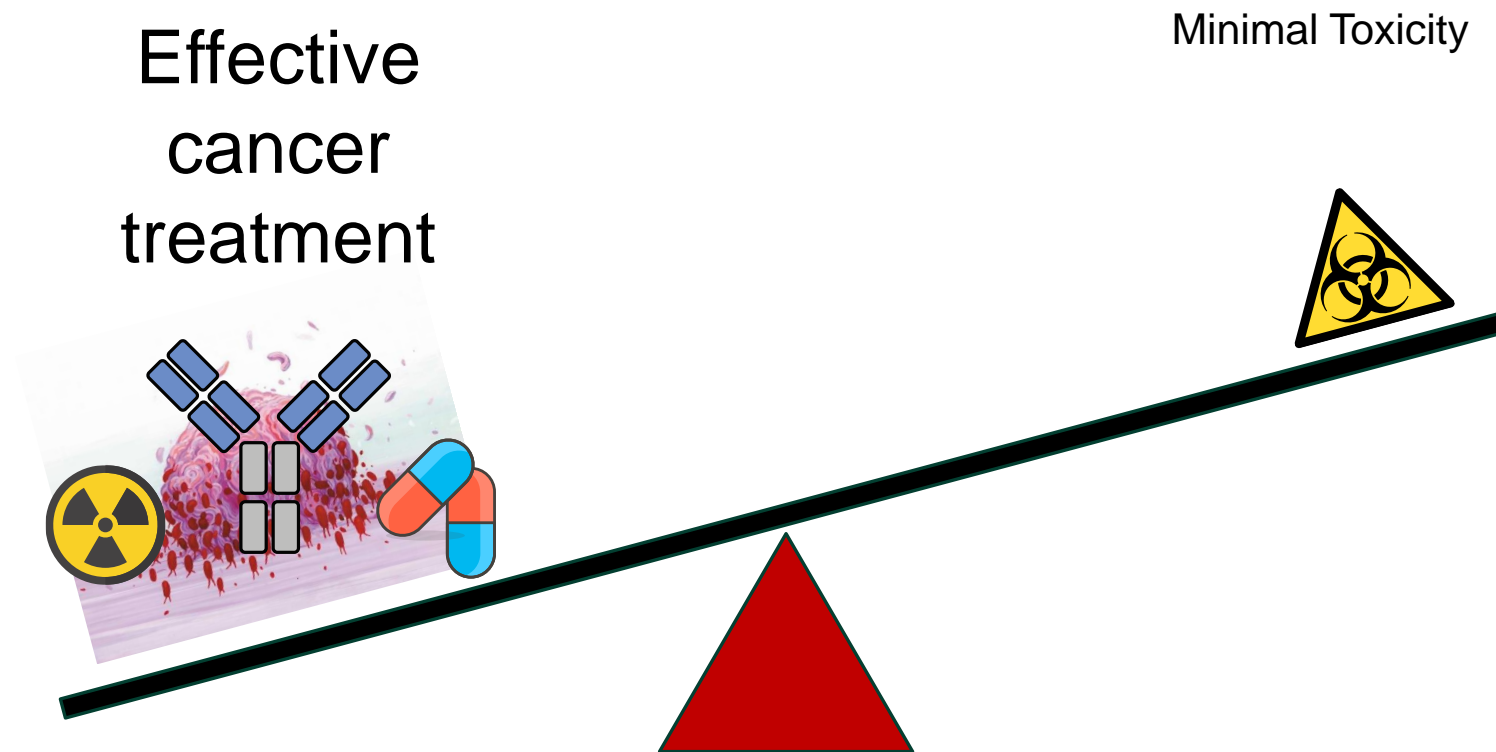
Medicine seeks to maximize effectiveness while minimizing side effects

Drugs should kill cancer, but not healthy tissues



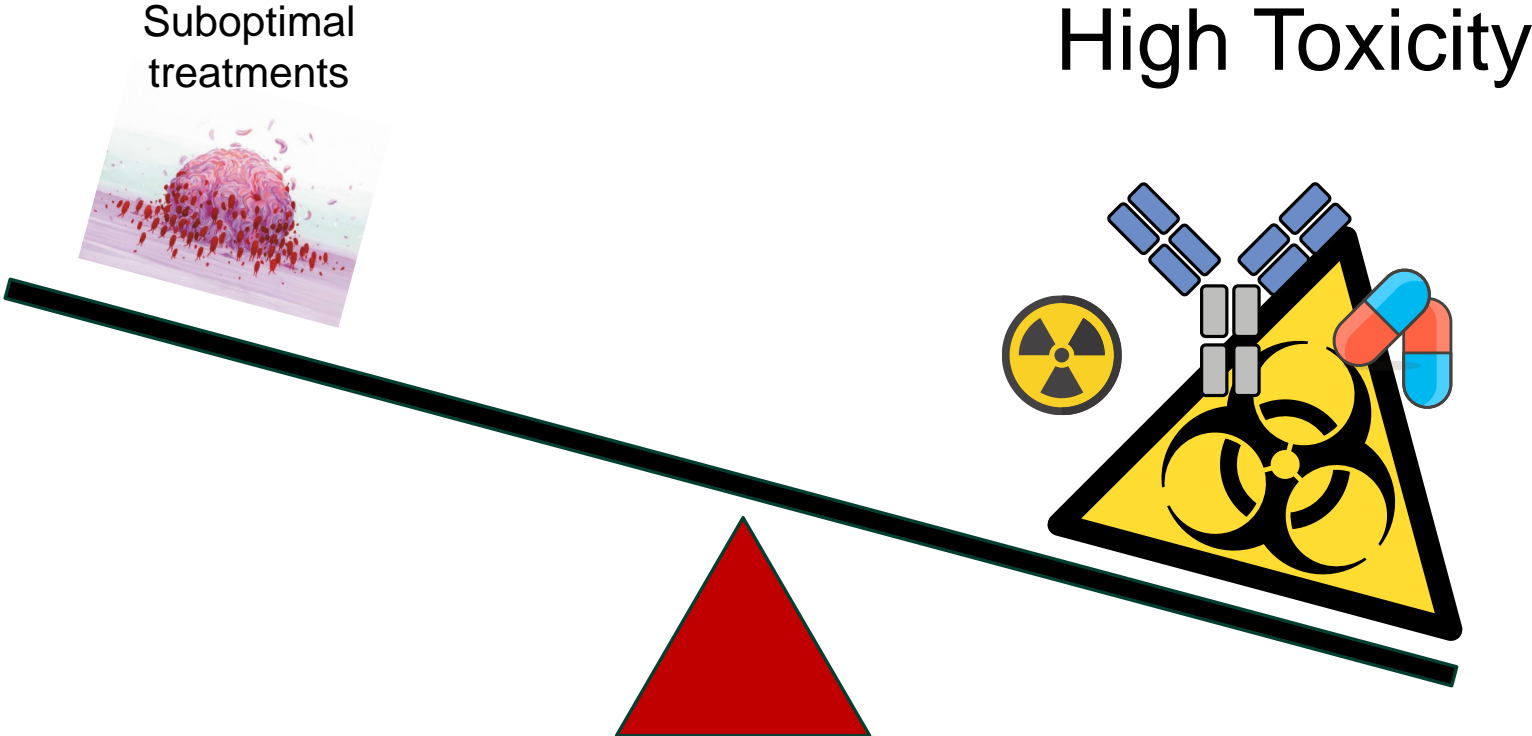
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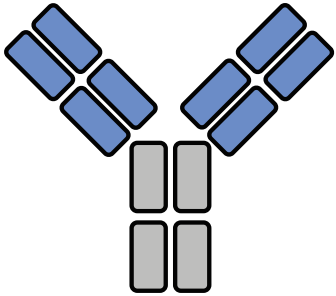
Drugs should kill cancer, but not healthy tissues



Conventional drug delivery often suffers from poor selectivity

Too little at the tumor, too much exposure to healthy tissues

Conventional Monoclonal Antibody



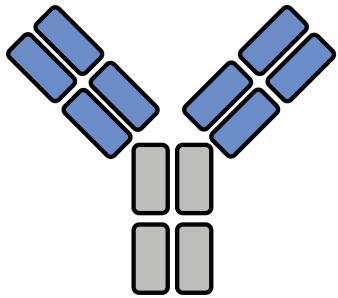
Highly specific “silver bullet”

Adapted from Santich et al. Clin Canc Res 2020

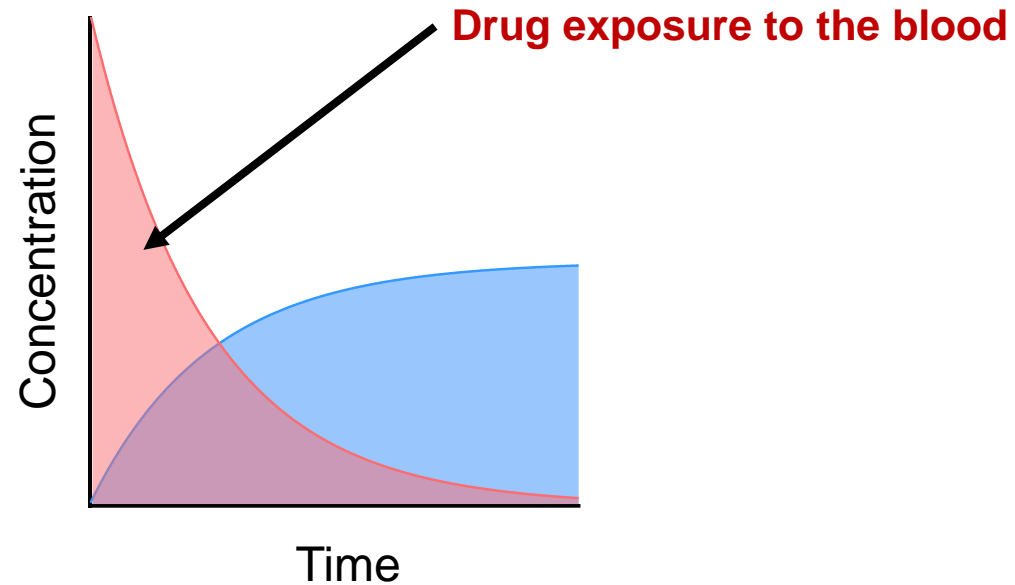
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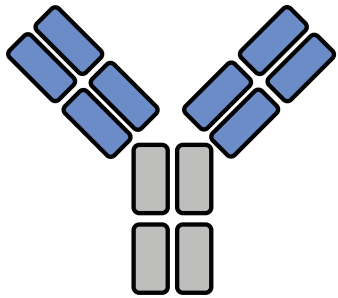


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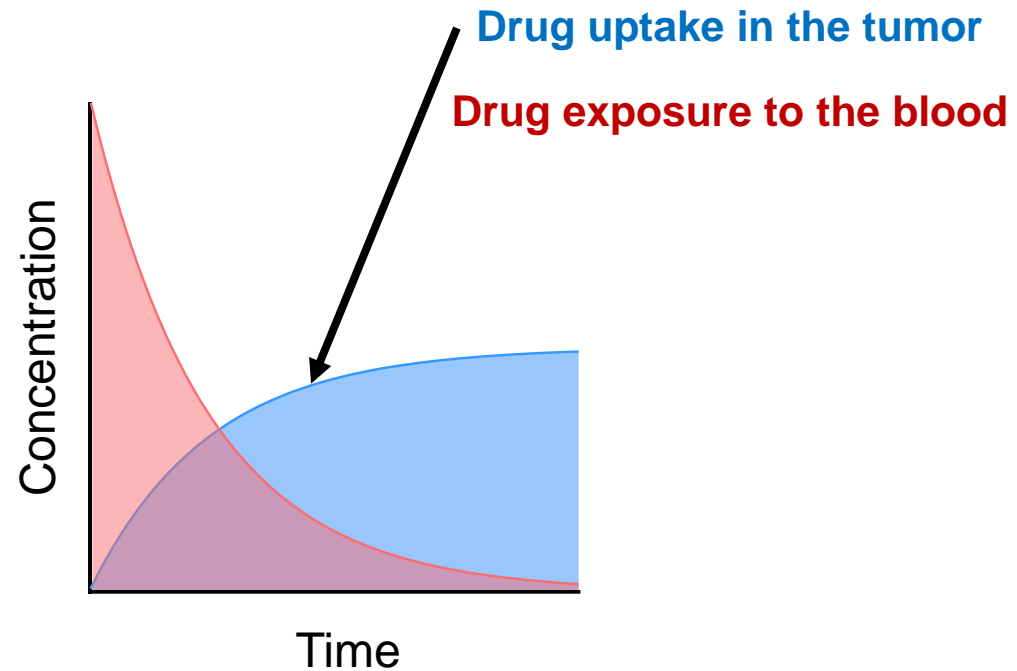
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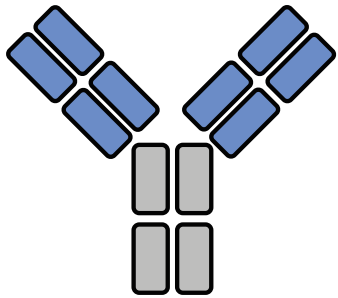


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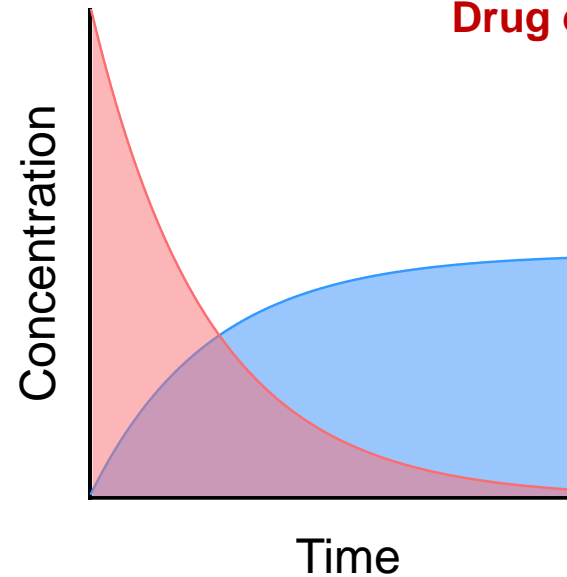
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$$\frac{\text{Drug uptake in the tumor}}{\text{Drug exposure to the blood}} = \text{Therapeutic Index (TI)}$$

(higher is better)

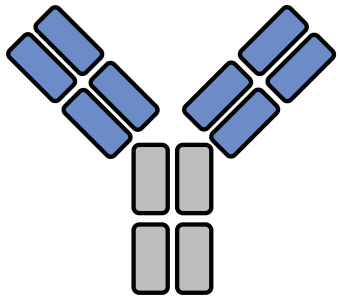


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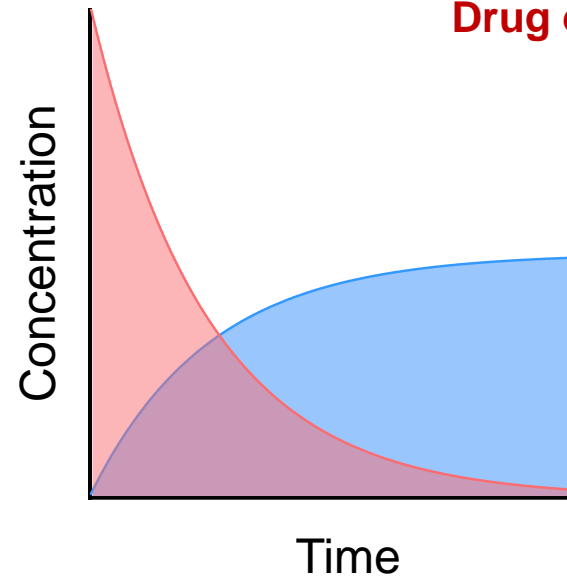
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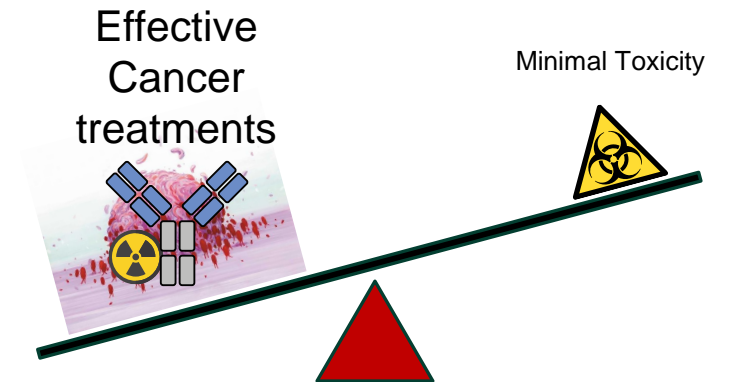


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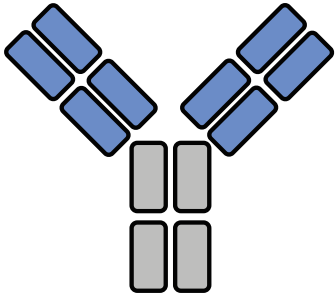


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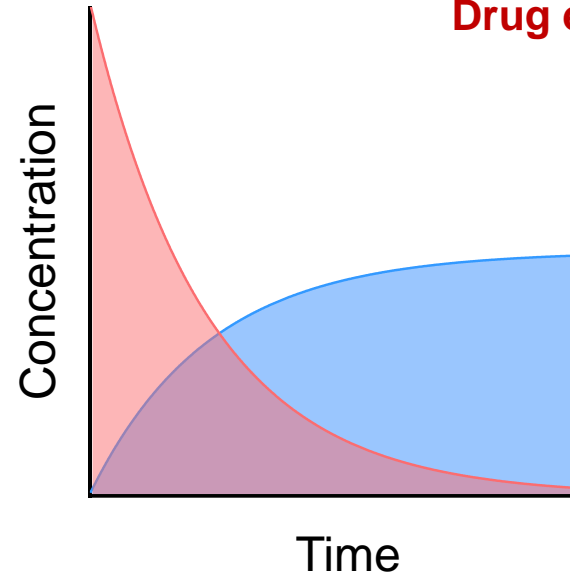
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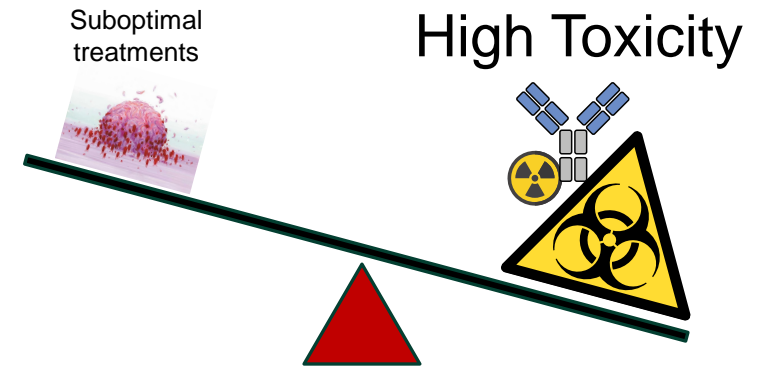


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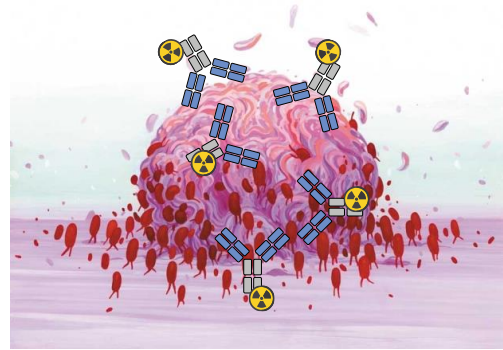
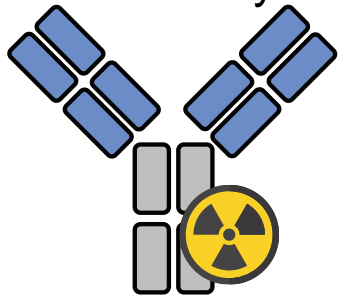


Adapted from Santich et al. Clin Canc Res 2020

Radioimmunotherapy: a powerful tool that requires precision

Highly effective against tumors, but also potentially damaging to blood and bone marrow

Conventional
Radiolabeled
Antibody

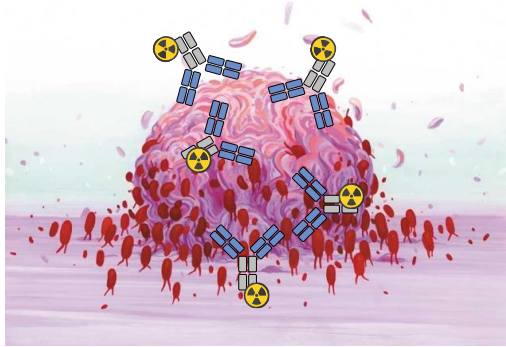
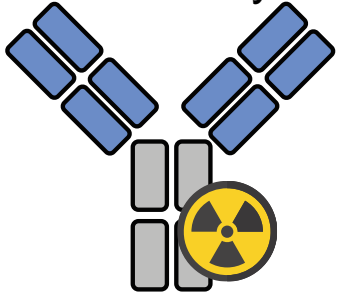


1-step radioimmunotherapy

Radioimmunotherapy: a powerful tool that requires precision

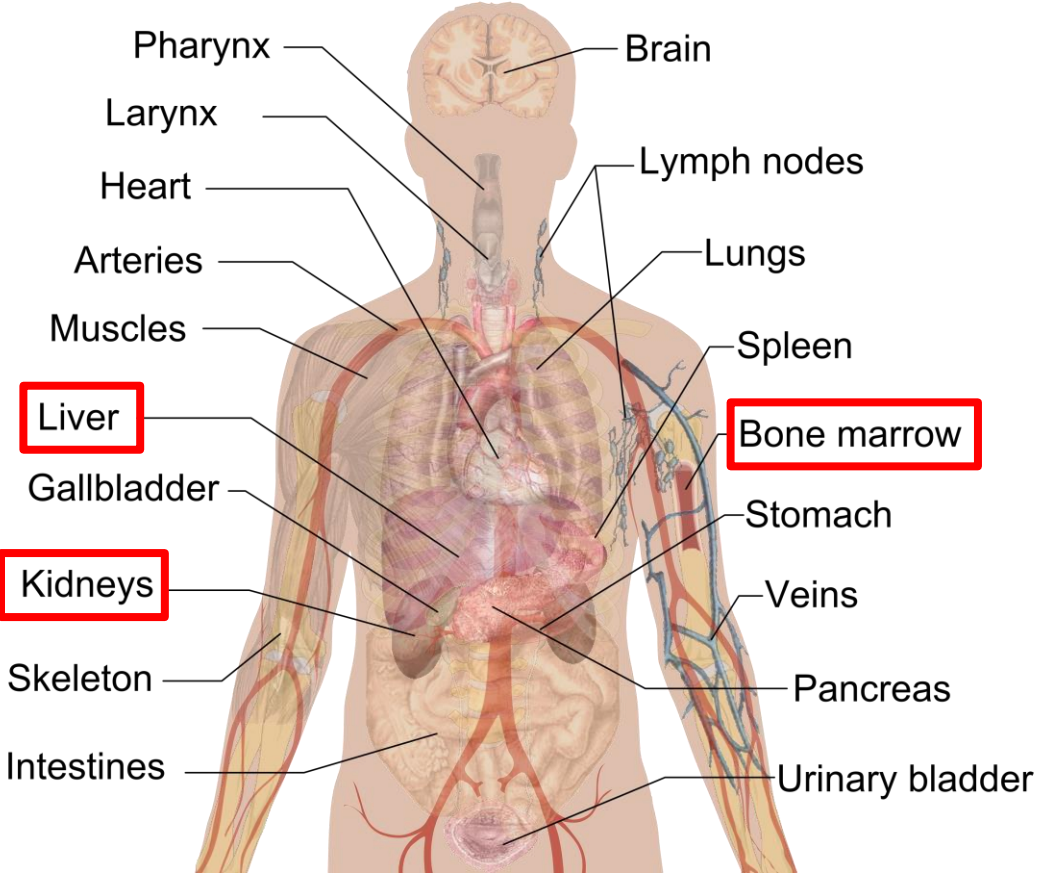
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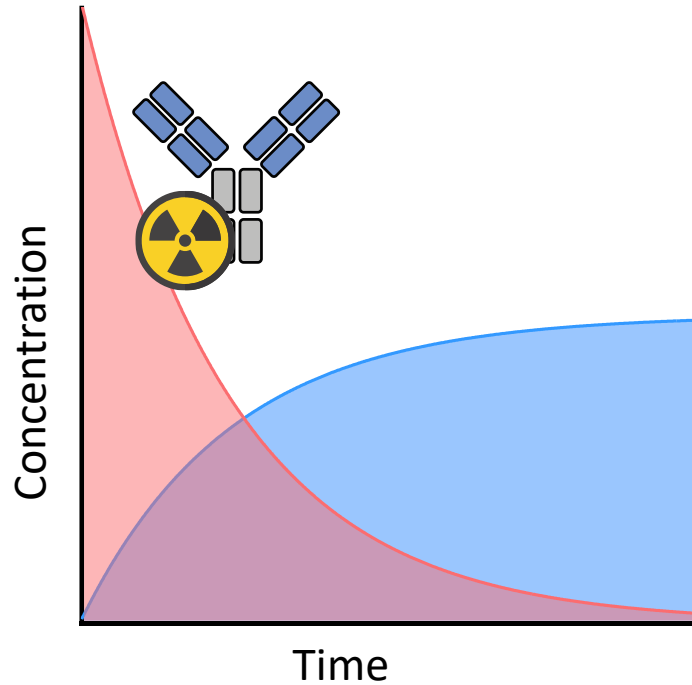
Internal organs



Conventional Radioimmunotherapy suboptimal for solid tumors

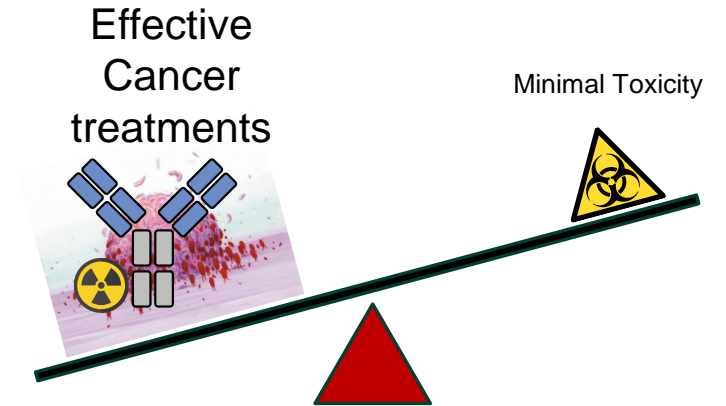
Therapeutic index is too low to be effective

Conventional Radioimmunotherapy



Tumor dose up to 100 Gy
Bone marrow dose <1-2 Gy

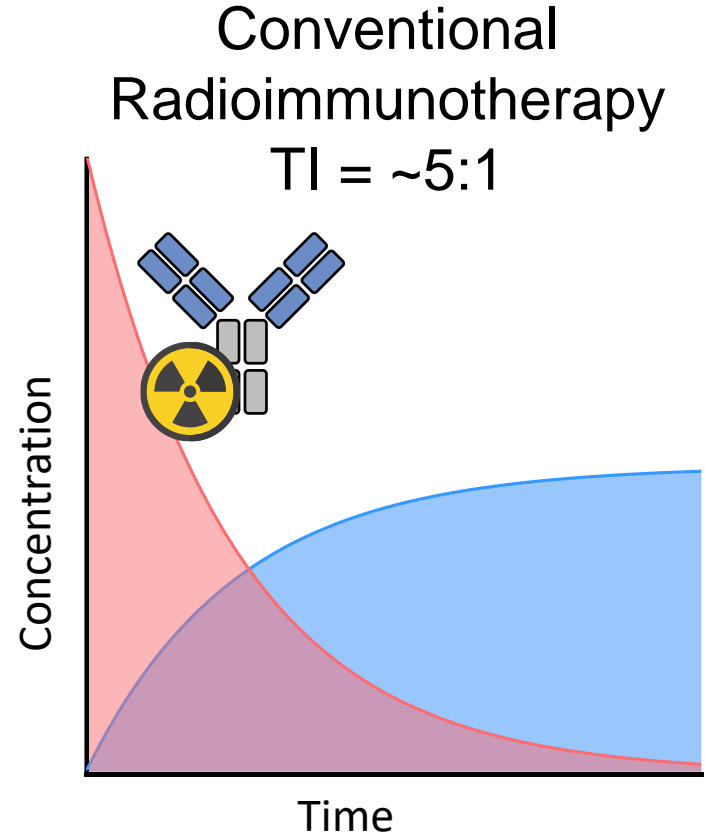
= Therapeutic Index (TI) >50-100:1



Adapted from Santich et al. Clin Canc Res 2020

Conventional Radioimmunotherapy suboptimal for solid tumors

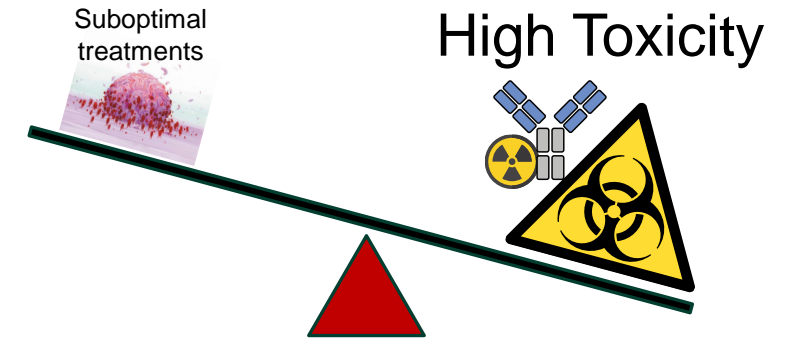
Therapeutic index is too low to be effective



Tumor dose up to 5-10 Gy
Bone marrow dose <1-2 Gy

=

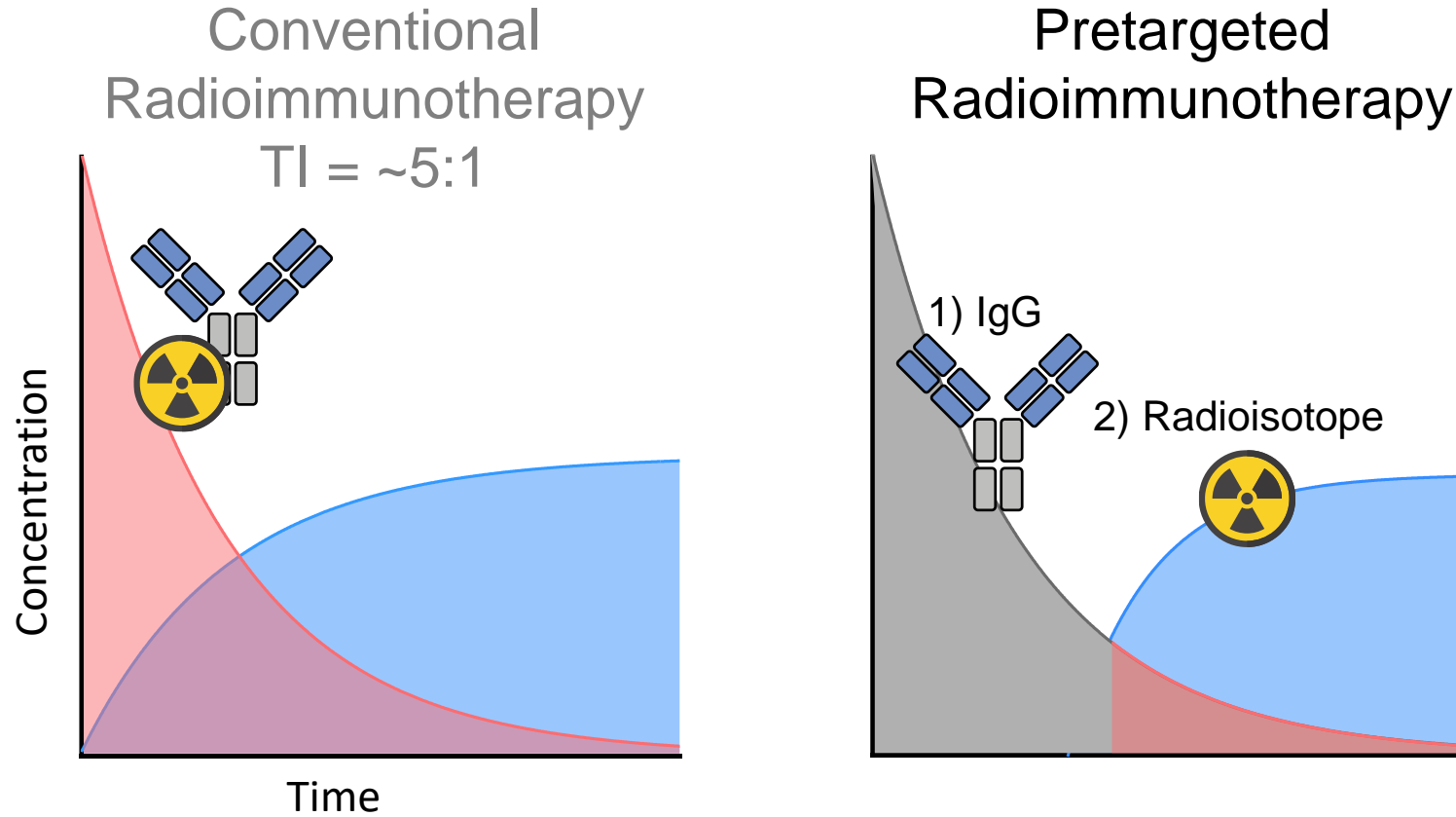
Only 10% of what you need



Adapted from Santich et al. Clin Canc Res 2020

Pretargeted Radioimmunotherapy can improve selectivity

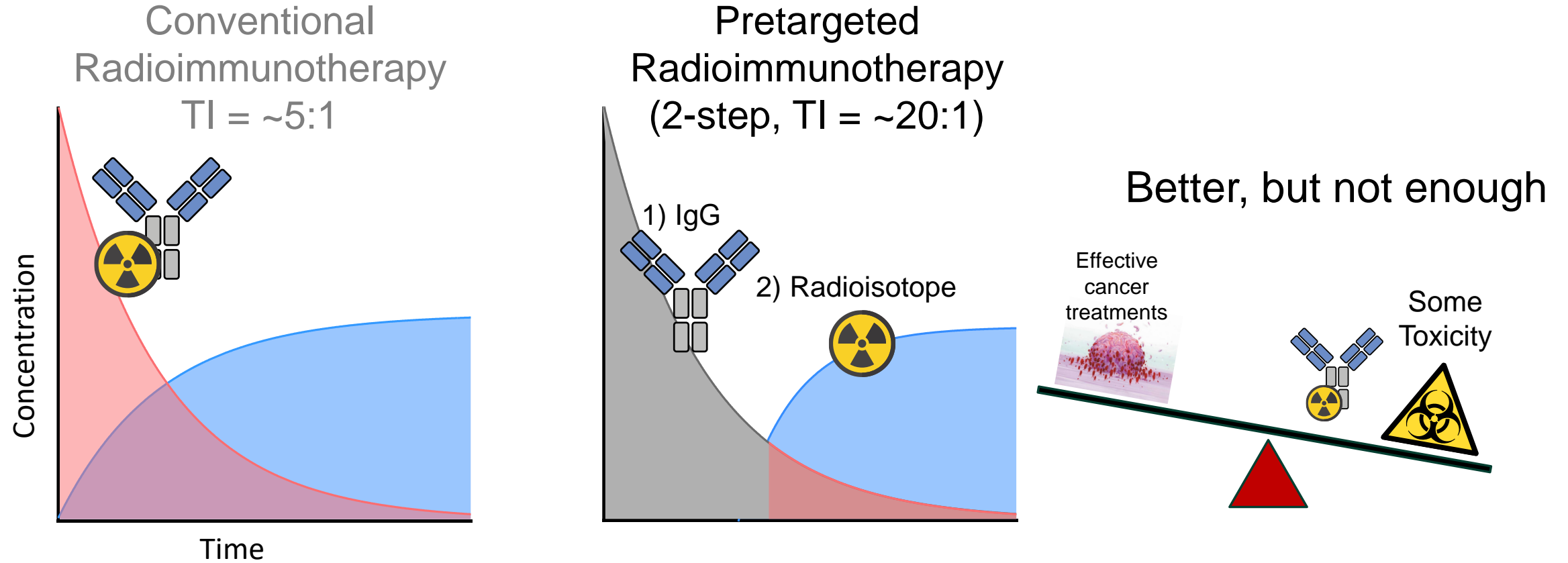
Still suboptimal for many solid tumors



Adapted from Santich et al. Clin Canc Res 2020

Pretargeted Radioimmunotherapy can improve selectivity

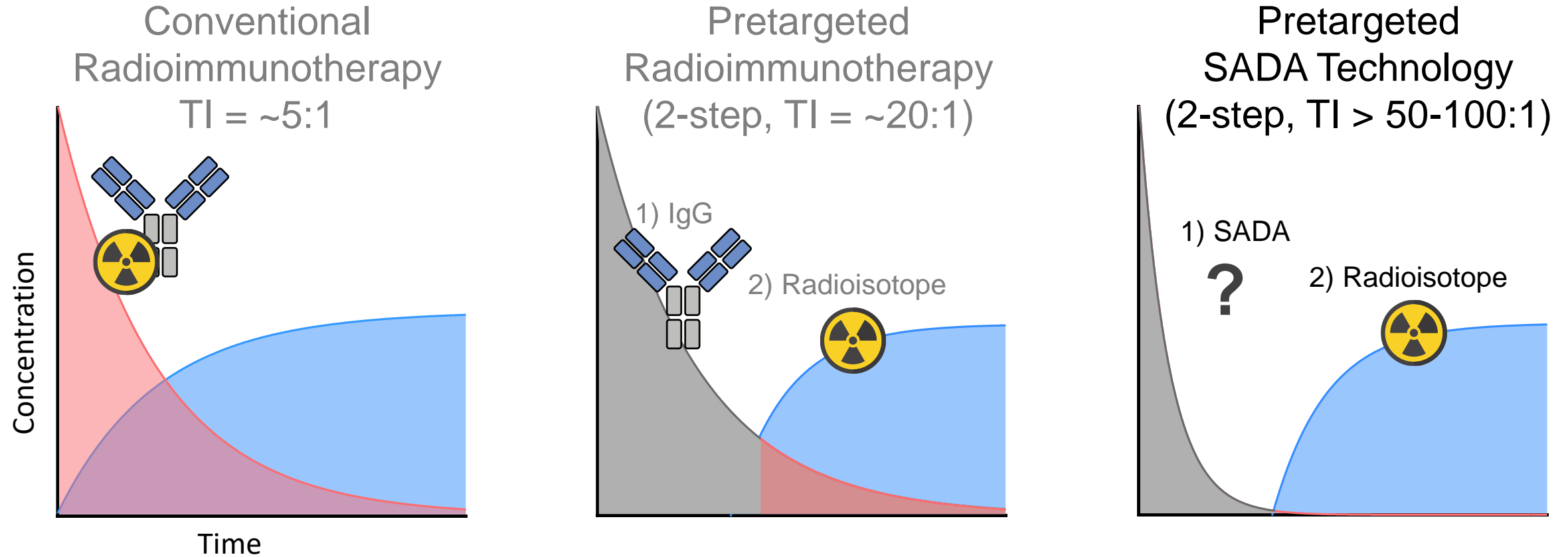
Still suboptimal for many solid tumors



Adapted from Santich et al. Clin Canc Res 2020

Best solution requires a self-clearing pretargeted antibody

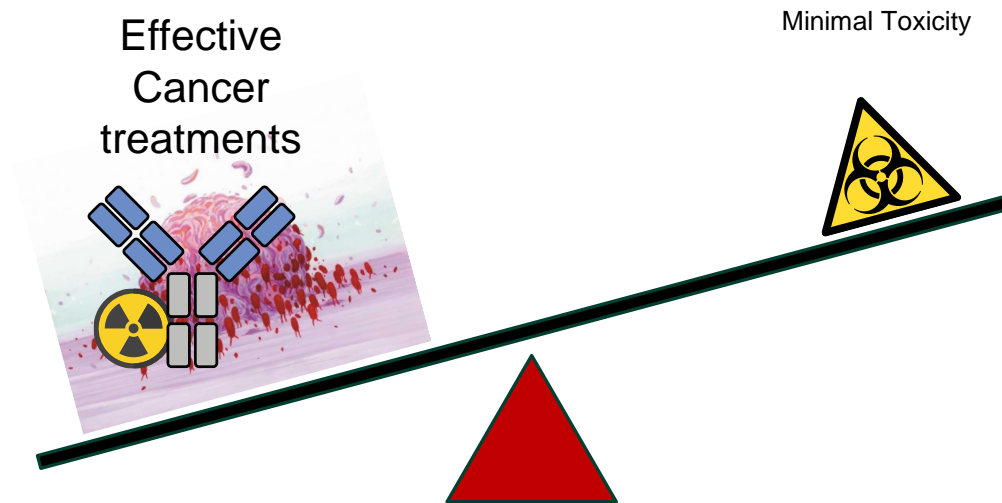
Elimination from the blood allows for high tumor doses without bone marrow damage



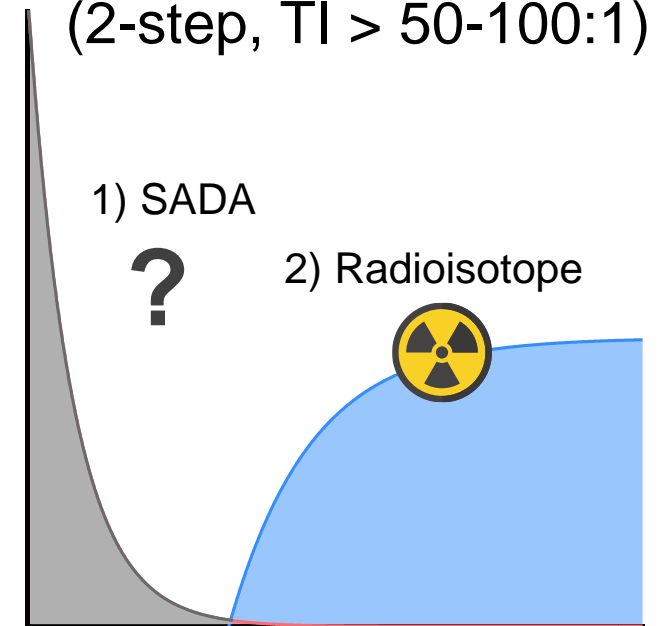
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Best solution requires a self-clearing pretargeted antibody

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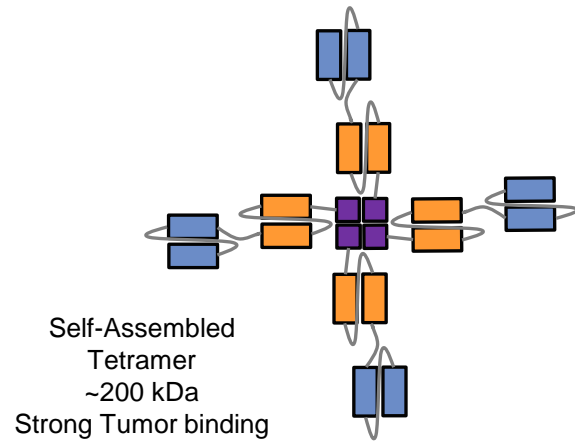
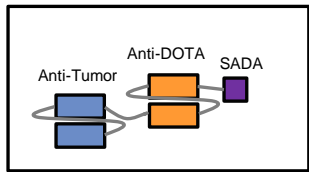
Pretargeted SADA Technology (2-step, TI > 50-100:1)



Adapted from Santich et al. Clin Canc Res 2020

SADA Technology engineered to stably bind the tumor, but rapidly clear from the blood

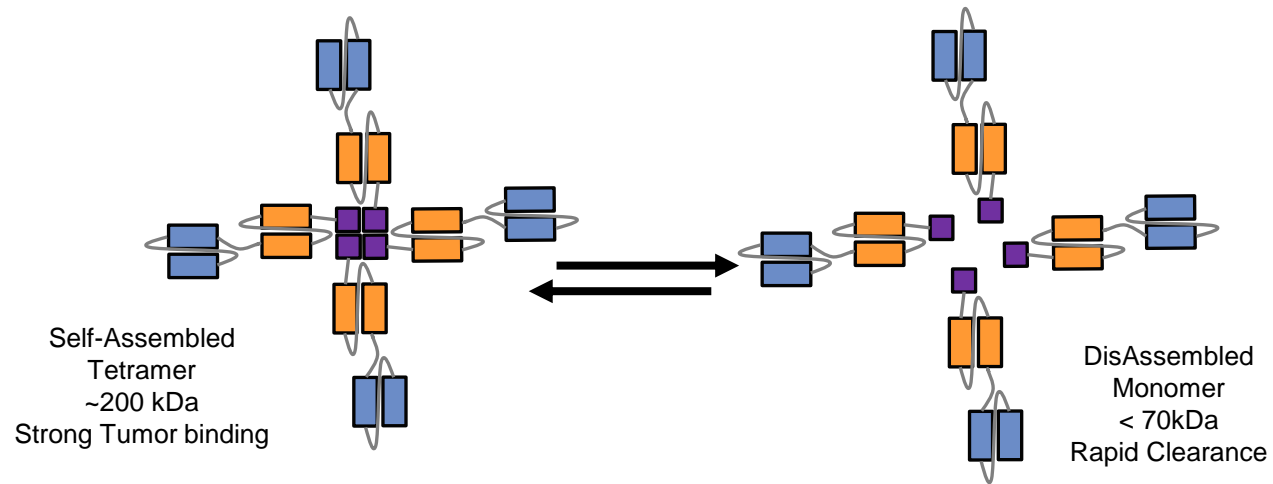
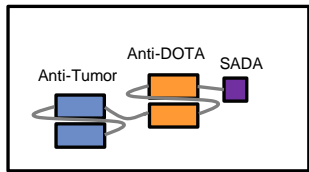
SADA domains uniquely selected to allow proteins to change size based on concentration



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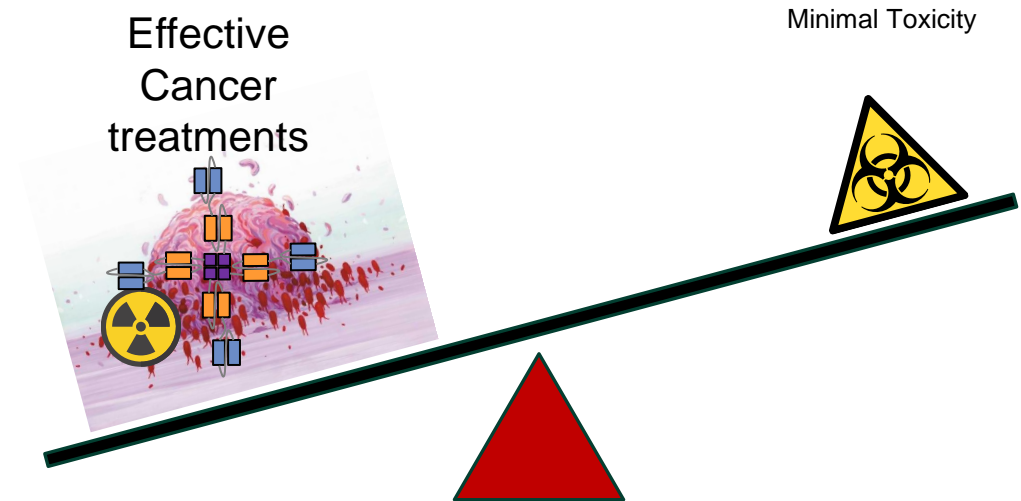
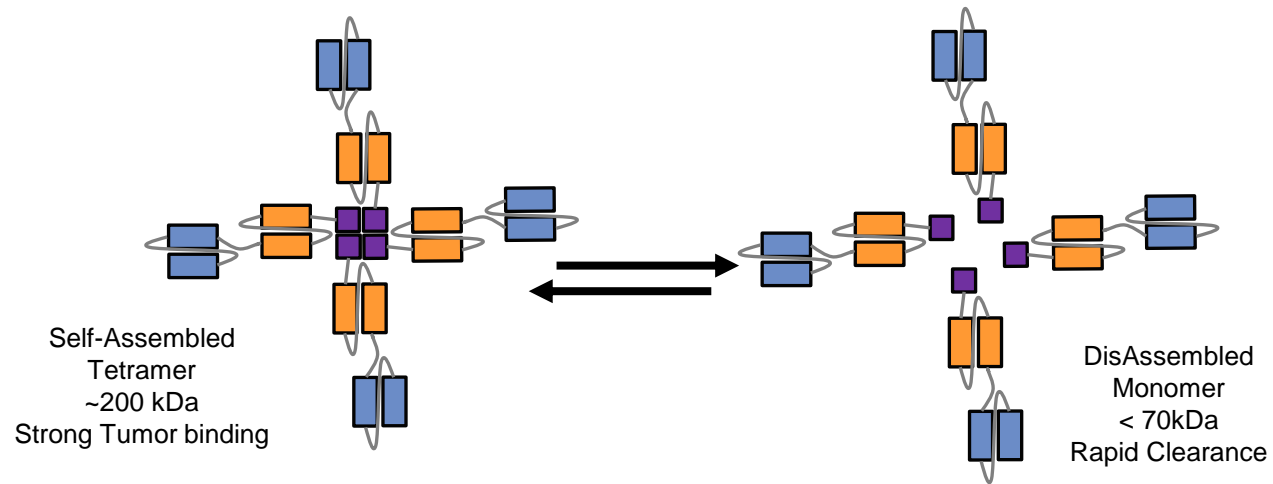
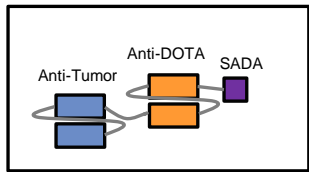
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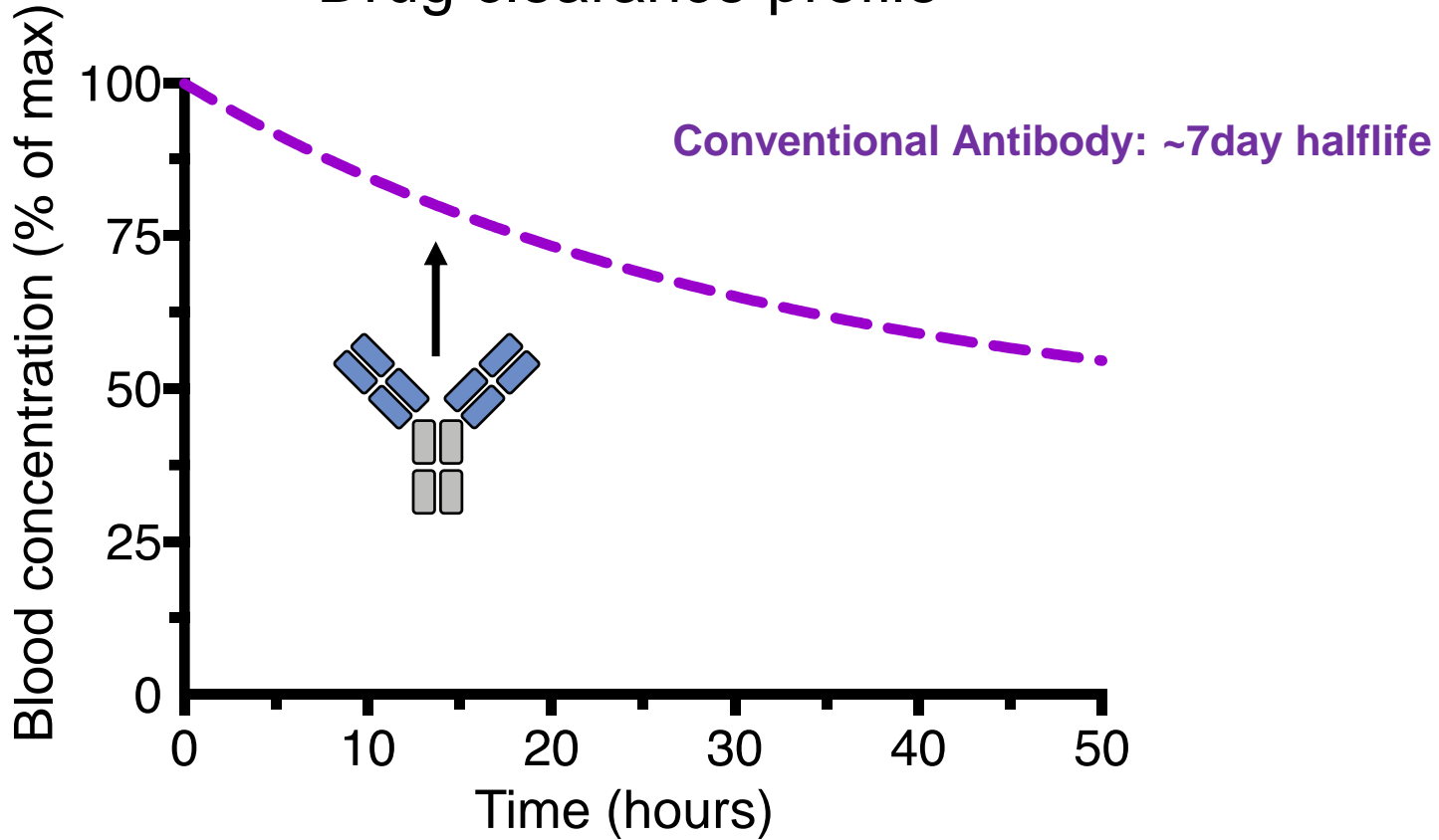


Adapted from Santich et al. Clin Canc Res 2020

SADA Technology demonstrates a unique clearance profile

Faster and more complete elimination than conventional antibodies

Drug clearance profile

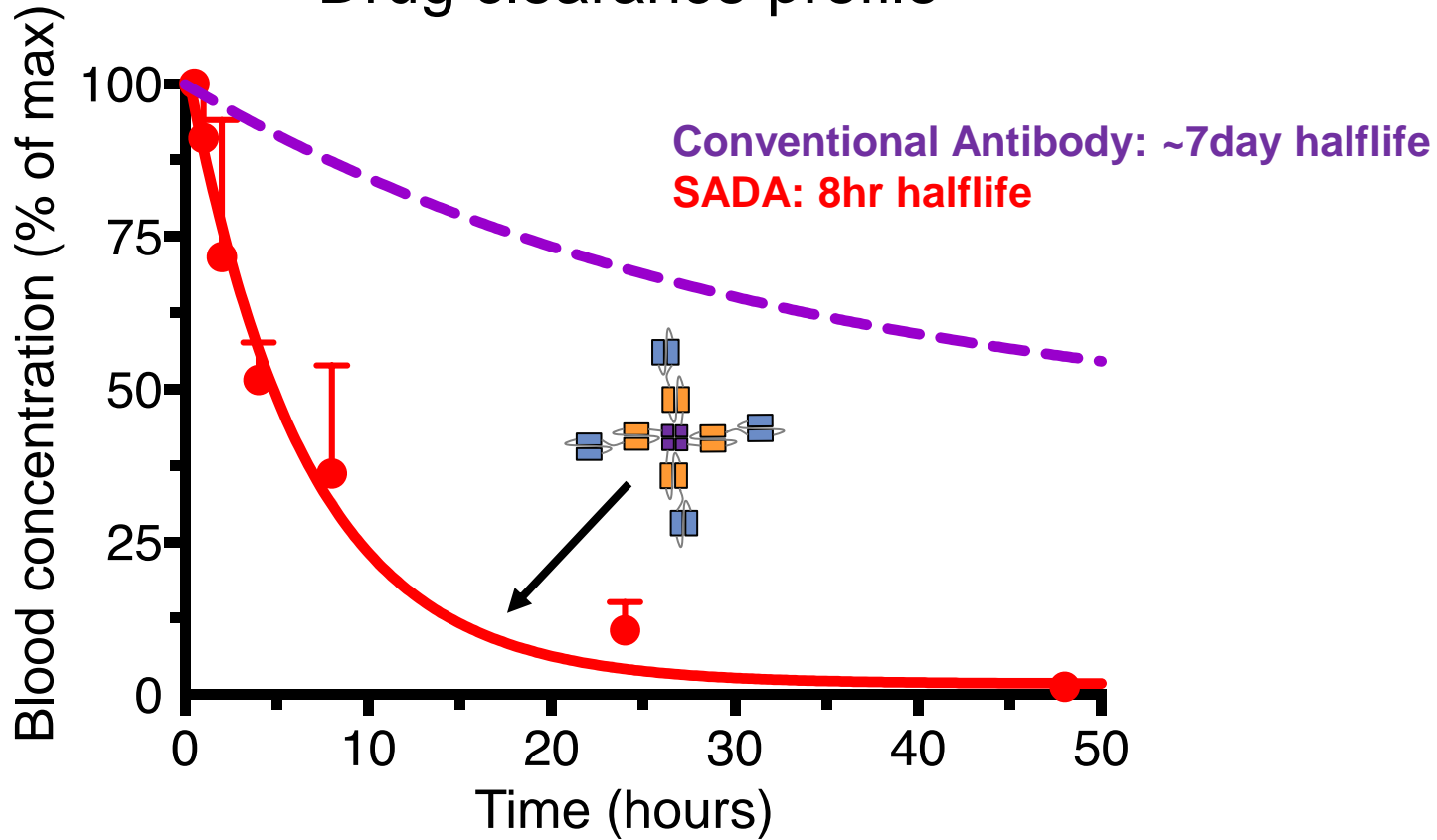


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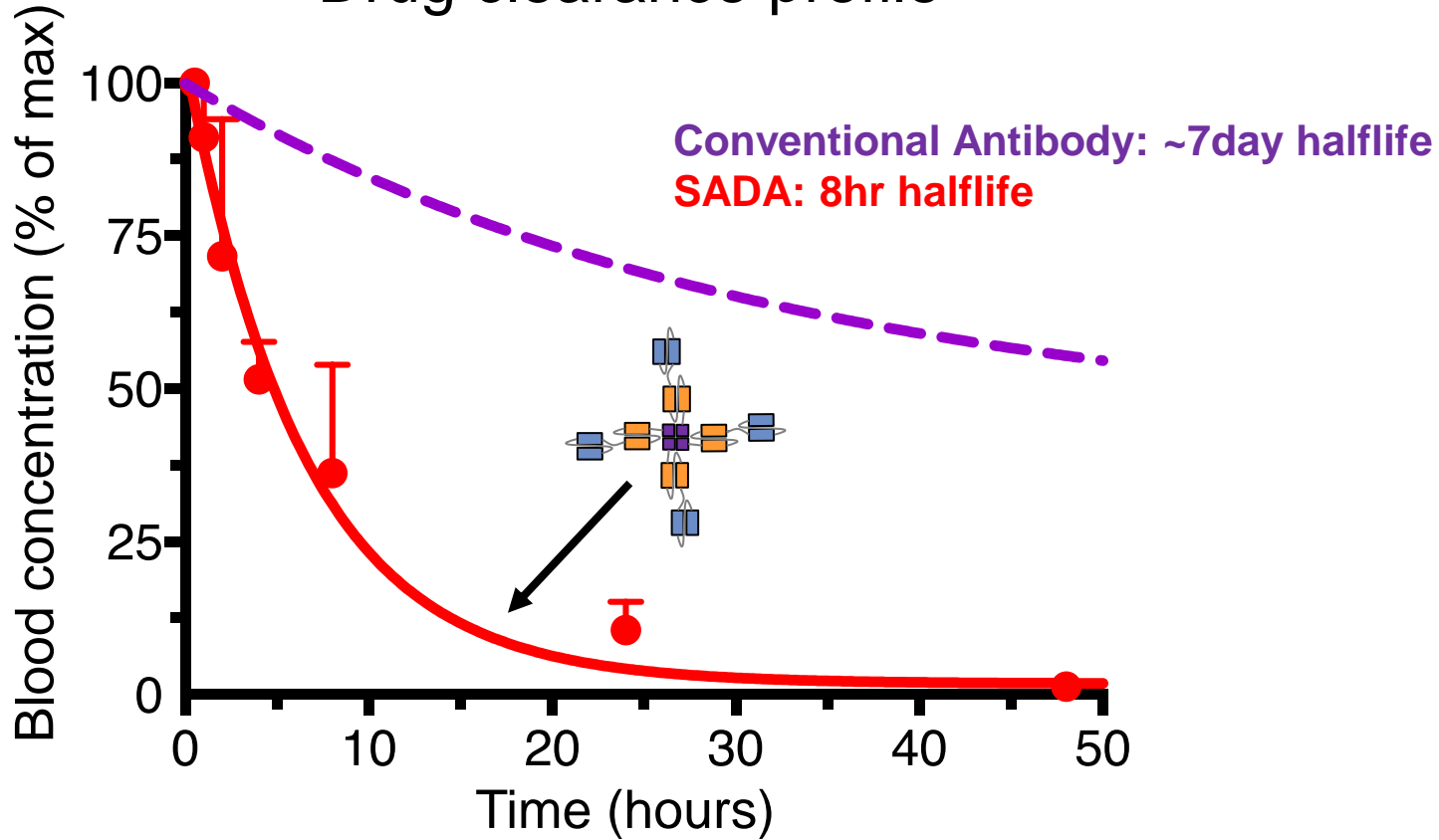


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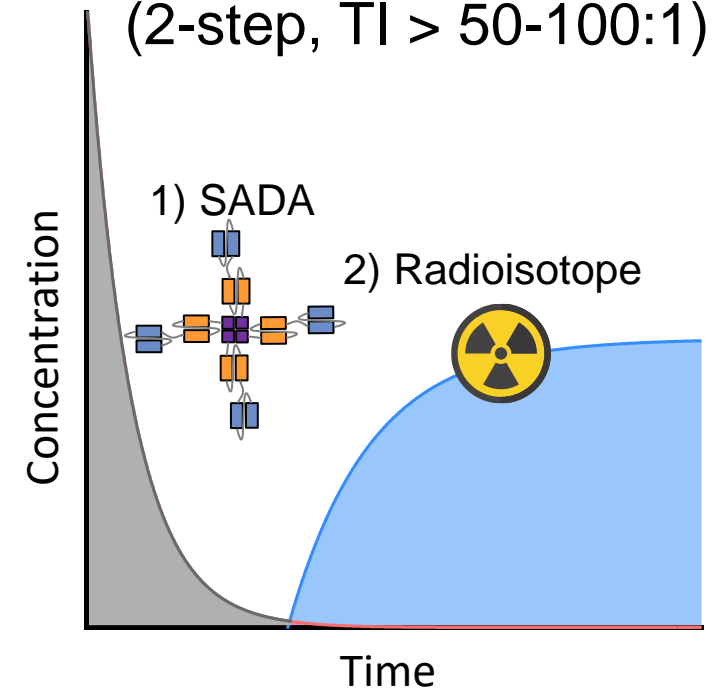
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Pretargeted SADA Technology (2-step, TI > 50-100:1)



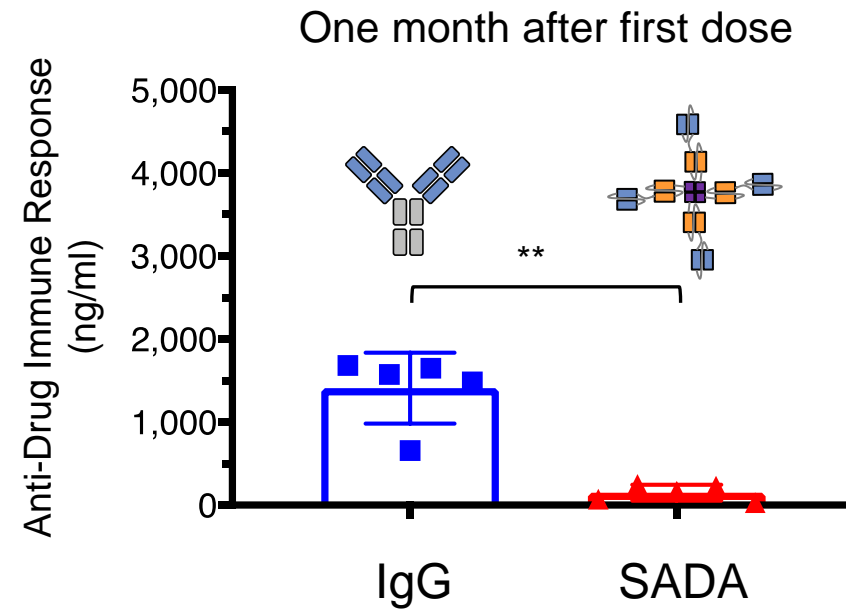
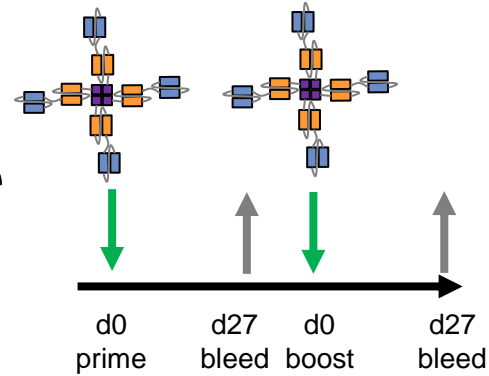
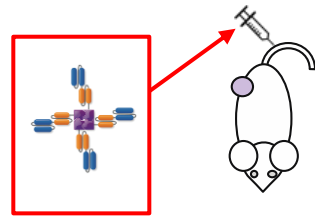
Adapted from Santich et al. Clin Canc Res 2020

SADA Technology's unique uptake and elimination profile reduces its immunogenicity

Reduced immunogenicity allows for more flexible treatment schedules

Immunogenicity Model

Two Monthly doses of GD2-SADA

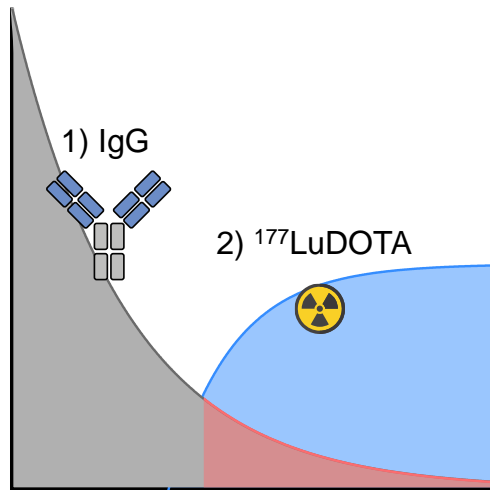


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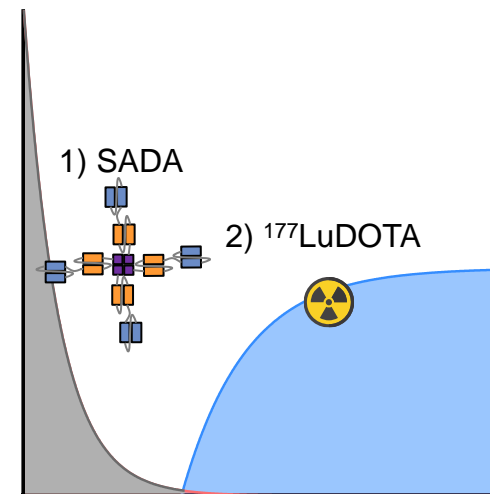
SADA demonstrates high tumor uptake with minimal exposure to all other tissues

Conventional antibody's persistence in blood stream leads to substantial unwanted exposure

Pretargeted Radioimmunotherapy
(2-step, TI = ~20:1)



Pretargeted SADA Technology
(2-step, TI > 50:1)

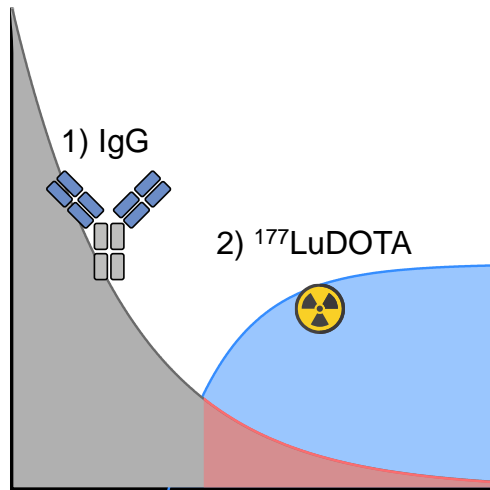


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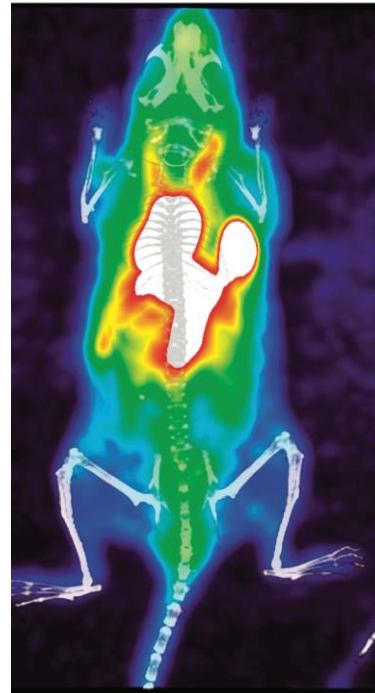
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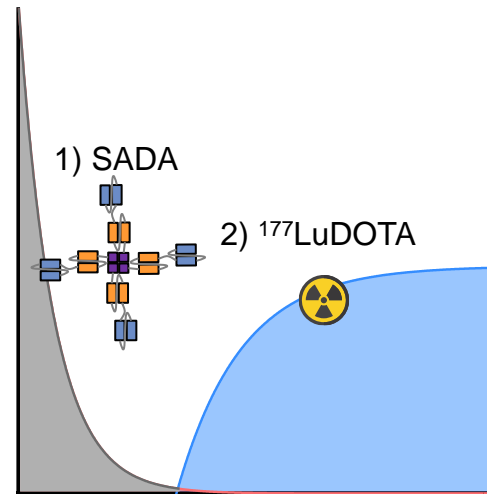
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2-step IgG PET



Pretargeted SADA Technology
(2-step, TI > 50:1)

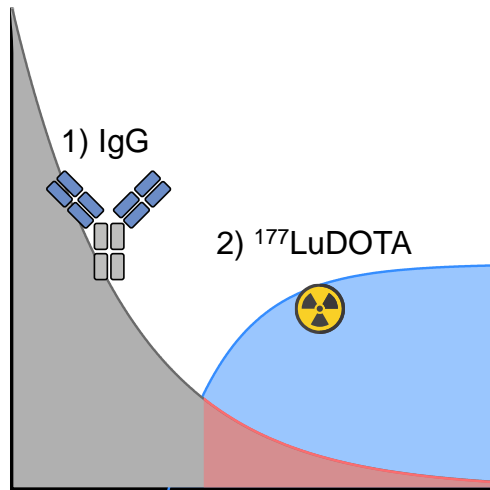


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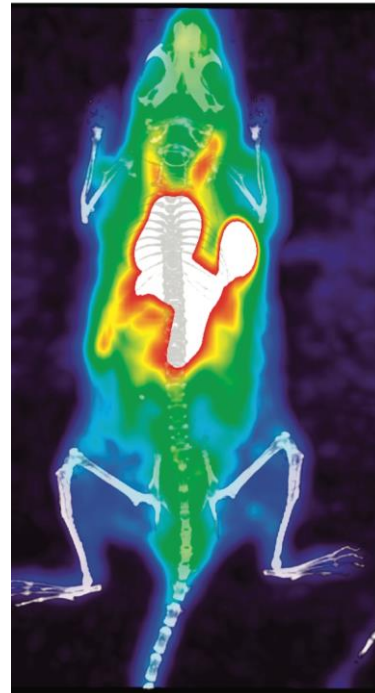
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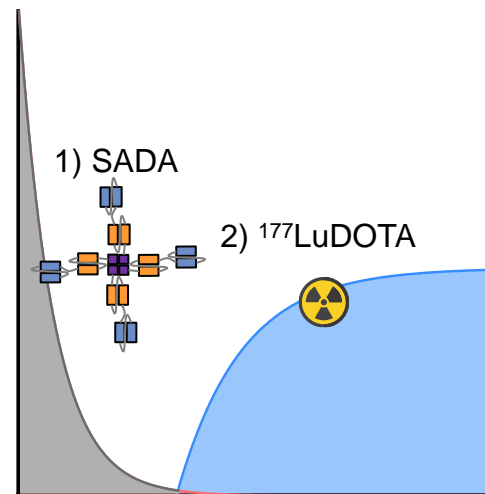
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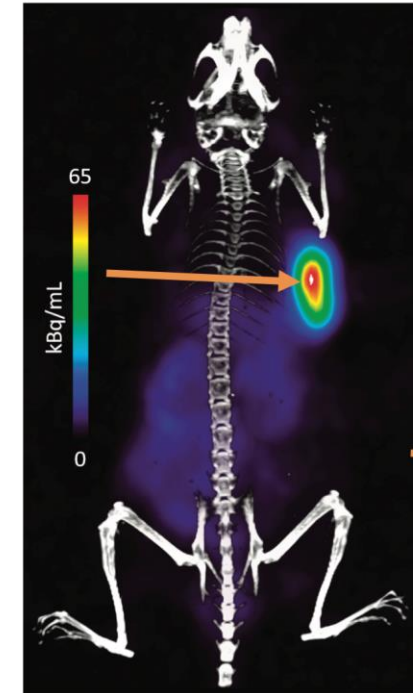
2-step IgG PET



Pretargeted SADA Technology
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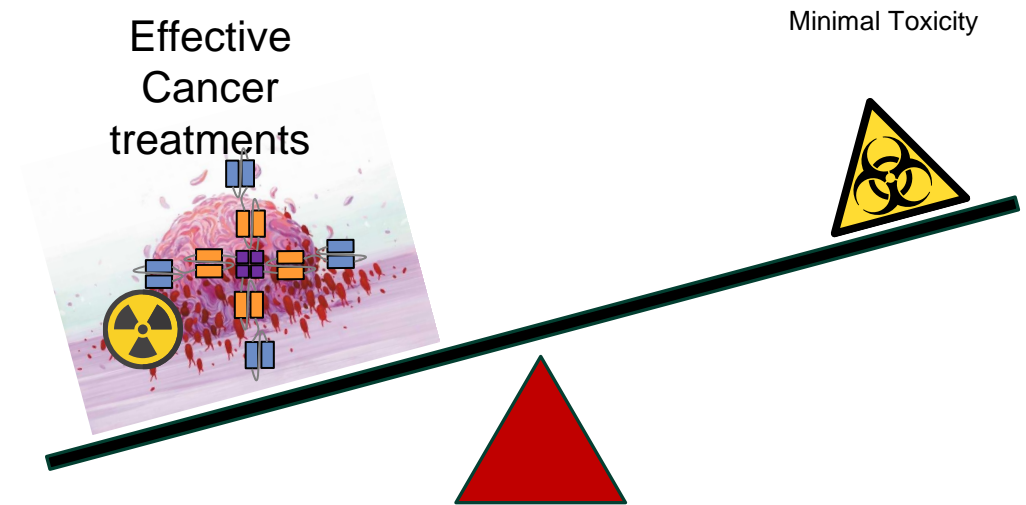
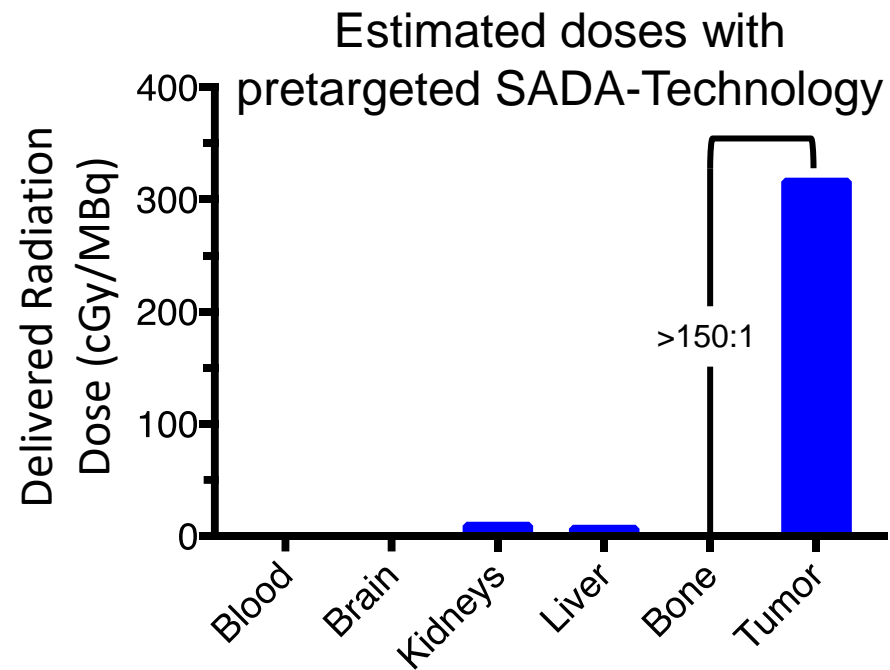
2-step SADA PET



Adapted from Santich et al. Clin Canc Res 2020

SADA Technology has a therapeutic index of >150 between tumor and bone marrow

Therapeutic index >50 is enough to treat most solid tumors

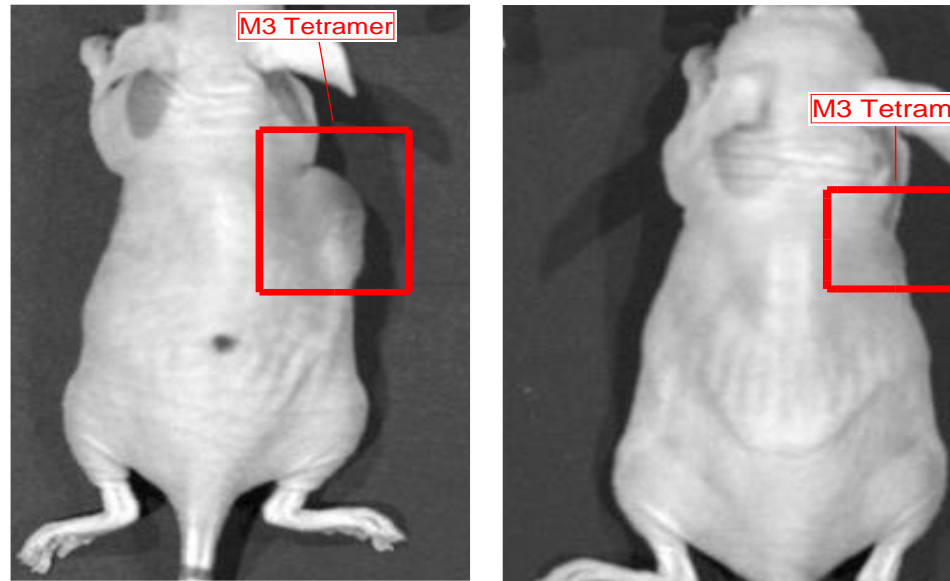


Adapted from Santich et al. Clin Canc Res 2020

SADA Technology can rapidly shrink large tumors in pre-clinical disease models

Precision drug delivery combined with high potency radiation results in effective treatments

Tumor response after GD2-SADA treatment



Day 1

Day 10

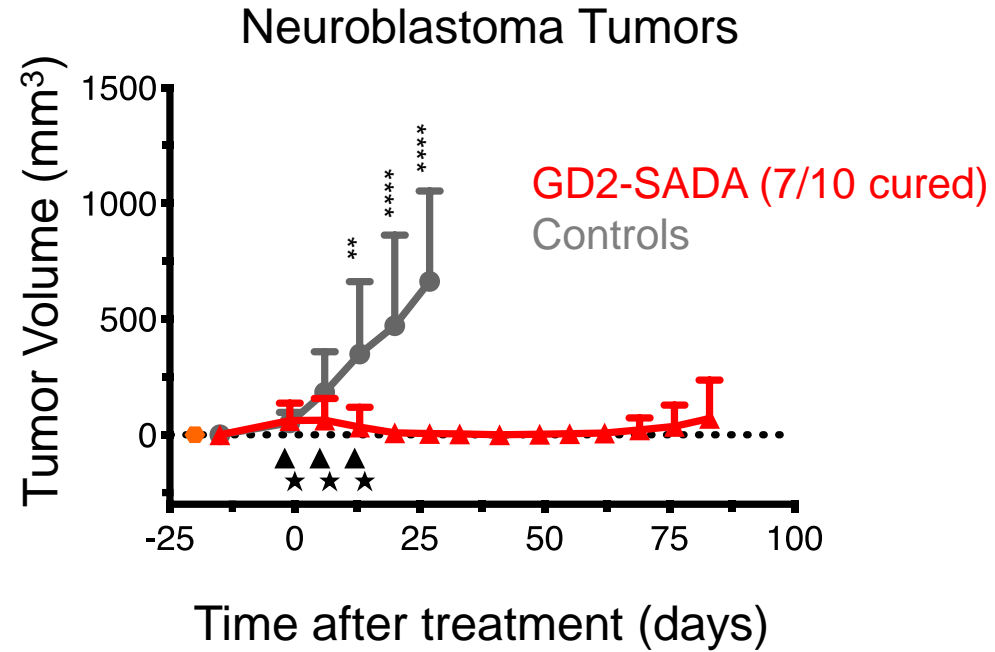
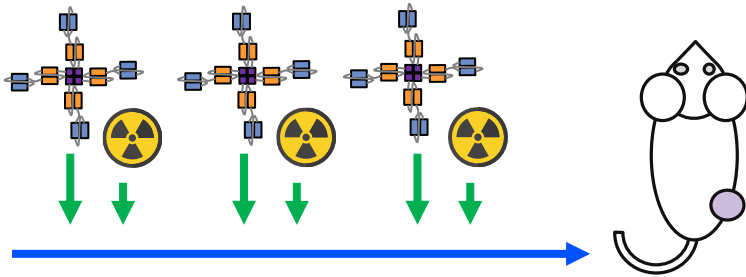
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GD2 targeted SADA can shrink neuroblastoma tumors

GD2-SADA demonstrated potency without liver, kidney or bone marrow toxicity

Neuroblastoma Tumor Model

3 weekly doses of GD2-SADA
3 weekly doses of $^{177}\text{LuDOTA}$

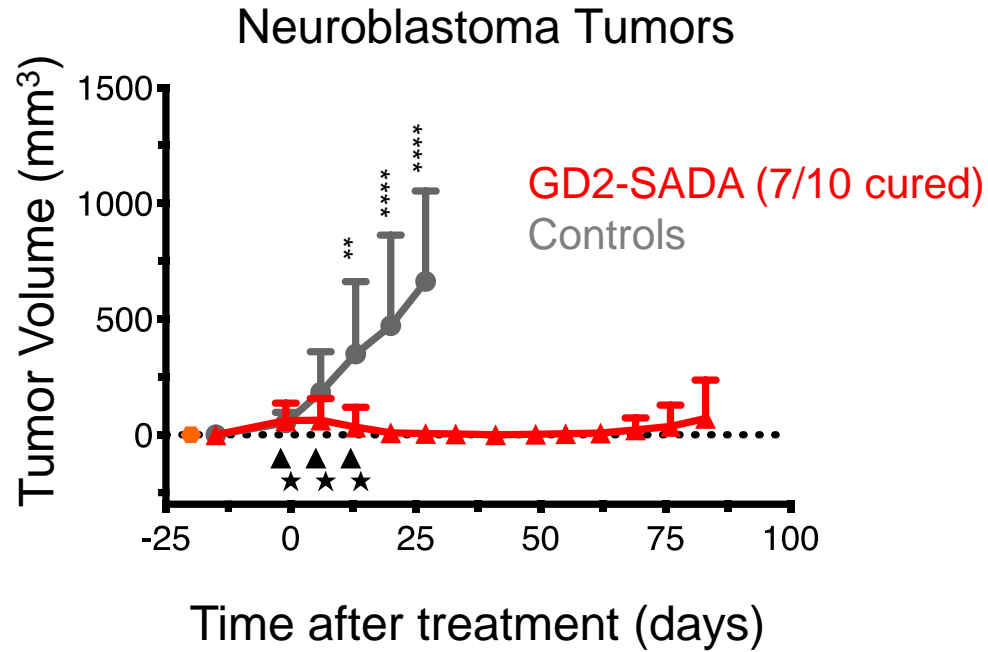
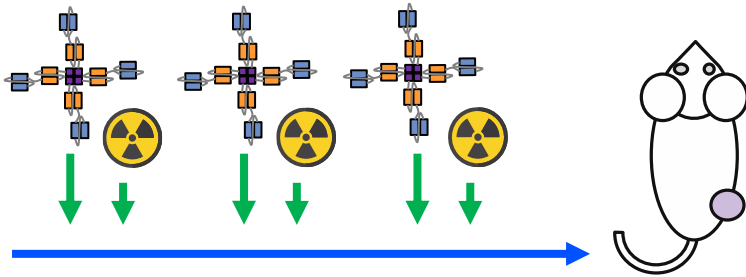


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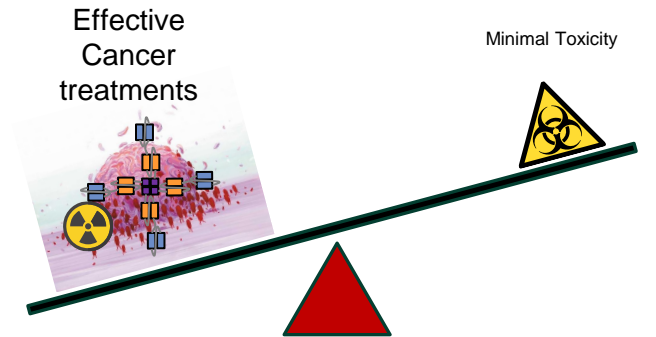
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Neuroblastoma Tumor Model
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No liver toxicity
No kidney toxicity
No bone marrow toxicity



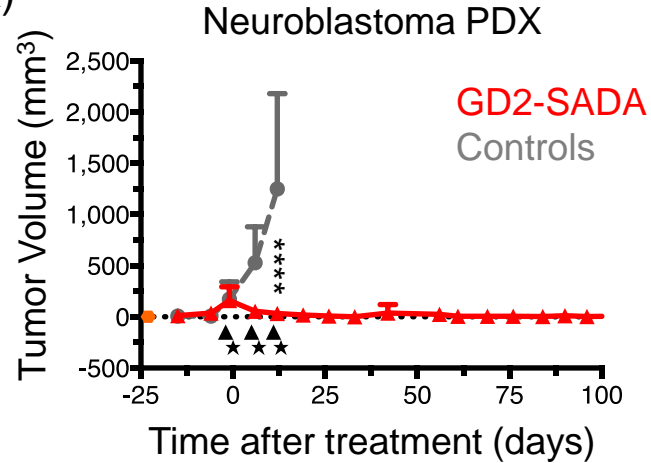
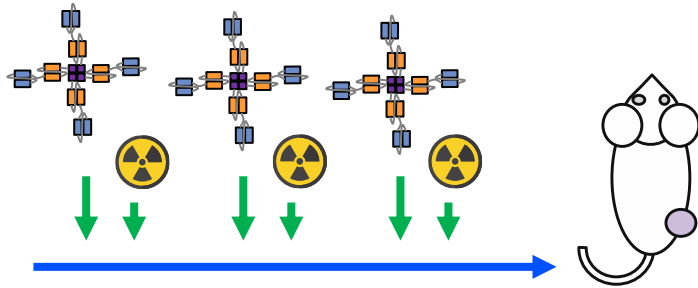
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SADA Technology can treat patient-derived neuroblastoma tumors

Tumor cures without toxicity to the liver, kidneys or bone marrow

Patient Derived Neuroblastoma Model (PDX)

3 weekly doses of GD2-SADA
3 weekly doses of $^{177}\text{LuDOTA}$



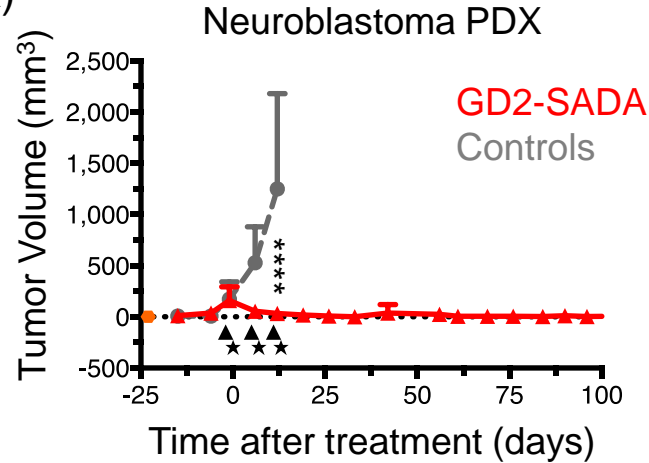
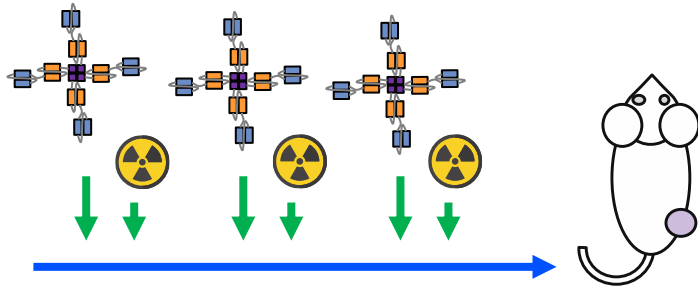
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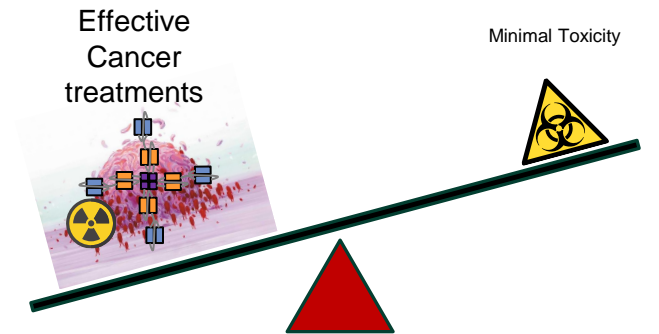
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3 weekly doses of GD2-SADA
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No liver toxicity
No kidney toxicity
No bone marrow toxicity



Adapted from Santich et al. Clin Canc Res 2020

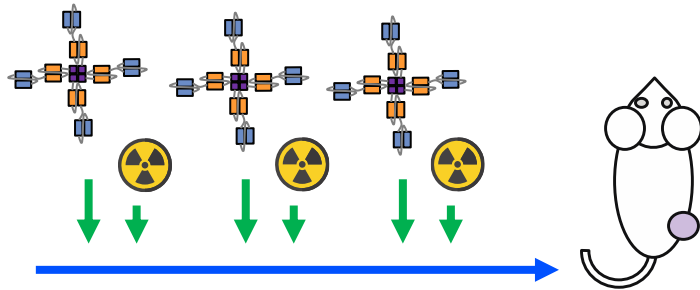
SADA Technology can treat patient-derived small cell lung cancer

SCLC has less than 10% survival over 5 years, but responds to SADA Technology

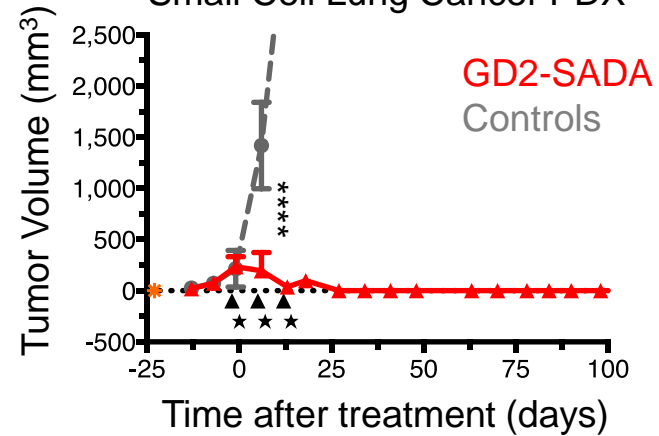
Patient Derived SCLC Model (PDX)

3 weekly doses of GD2-SADA

3 weekly doses of $^{177}\text{LuDOTA}$



Small Cell Lung Cancer PDX

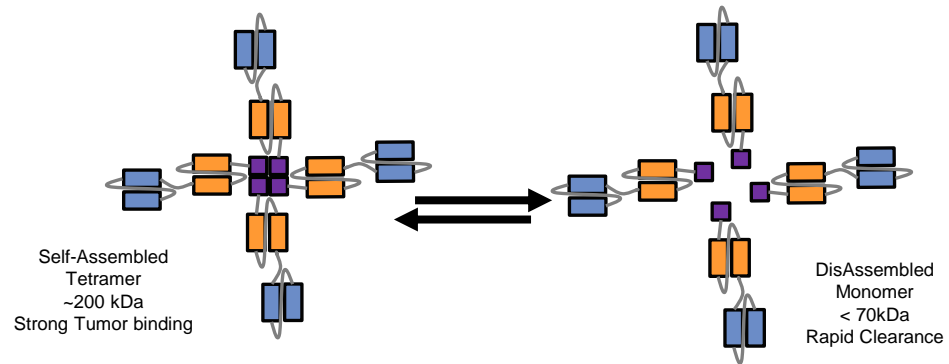


Adapted from Santich et al. Clin Canc Res 2020

SADA Technology can be used as a theranostic

Therapeutic + Diagnostic

SADA Technology Liquid Radiation™

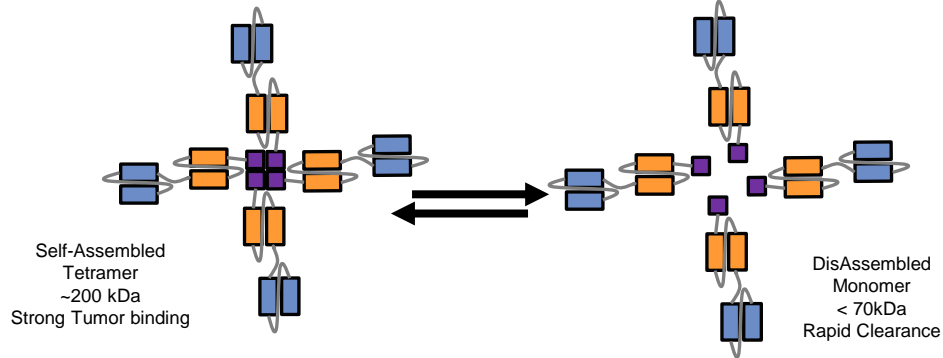


Adapted from Santich et al. Clin Canc Res 2020

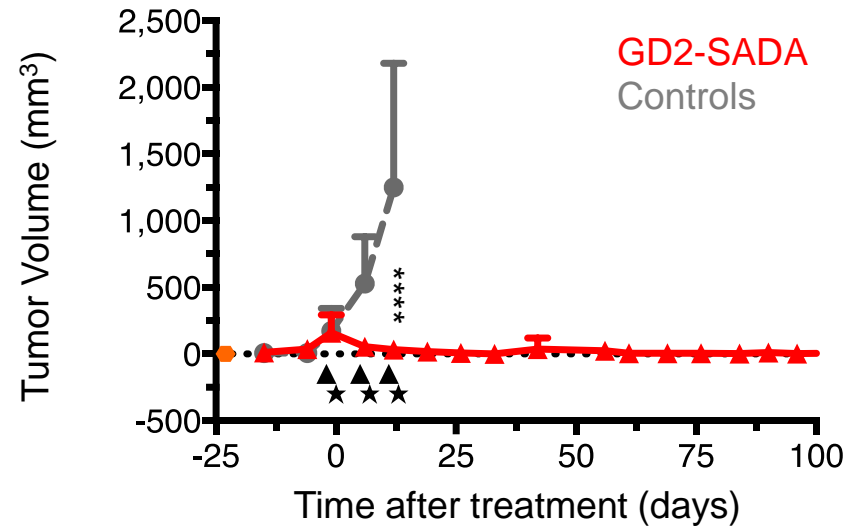
SADA Technology can be used as a theranostic

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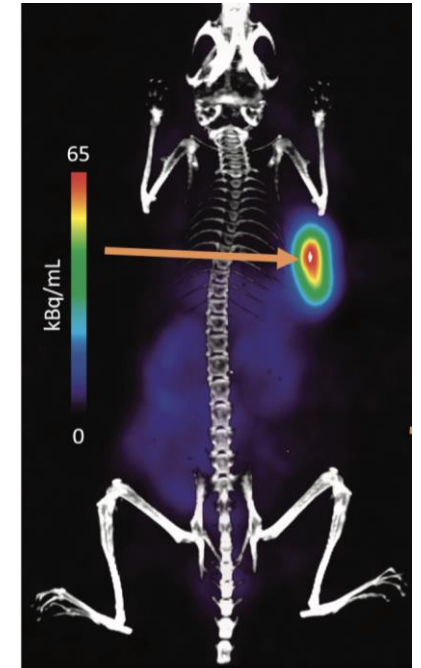
SADA Technology Liquid Radiation™



Treatment of tumors (Therapeutic)



Imaging of Tumors (Diagnostic)



Adapted from Santich et al. Clin Canc Res 2020

SADA Technology is a highly modular approach to treating cancer

Safe and Effective

- Targets tumors with high precision and spares normal tissues, especially blood/bone marrow
- Demonstrates substantially higher therapeutic indices than to conventional approaches (TI = >150:1 for bone marrow)

Highly Modular

- Can be adapted to use antibody and target wide variety of tumor markers (solid + hematological malignancies)
- Can be used to deliver a wide array of different isotopes: imaging, therapy, gamma, alpha

Theranostic

- Can deliver radiation both as a therapeutic and a diagnostic tool
- Tumors can be imaged by PET or SPECT to identify tumor masses or measure their responses

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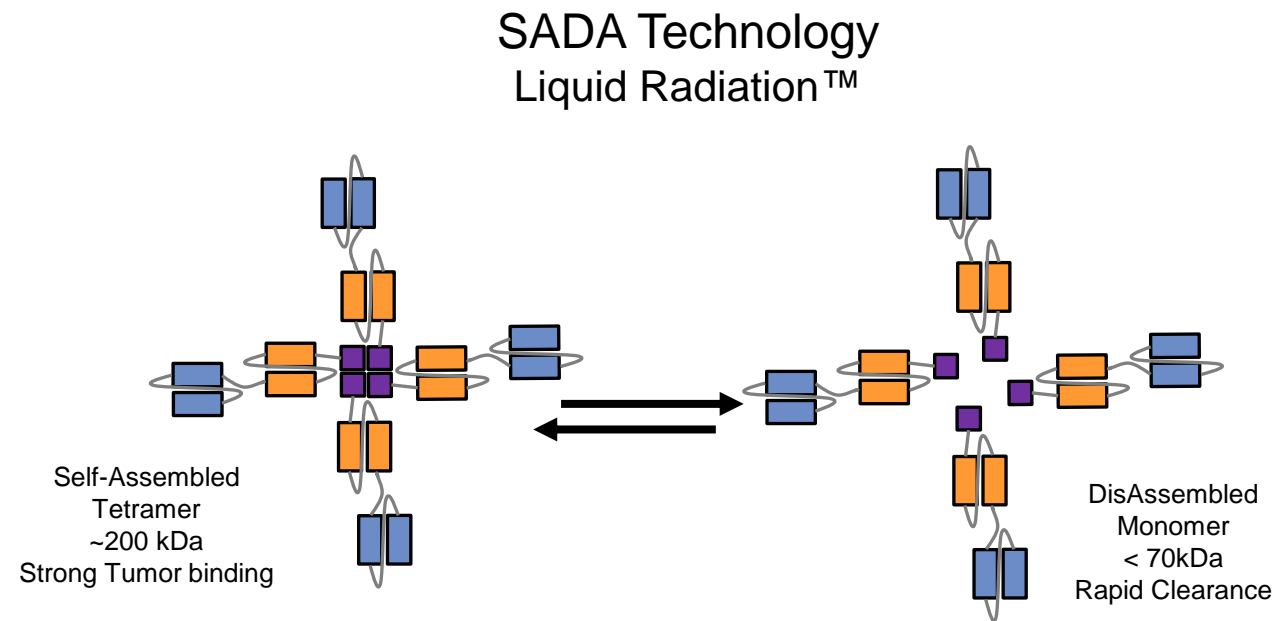
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Questions?



Adapted from Santich et al. Clin Canc Res 2020