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RADIOPHARMACEUTICALS – A HISTORY OF SUCCESS AND FAILURE

- December 9, 2020

SUCCESS AND FAILURE



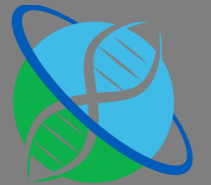
Zevalin
Bexxar

> \$20 mUSD



Xofigo
Lutathera

\$415 mUSD
> \$400 mUSD



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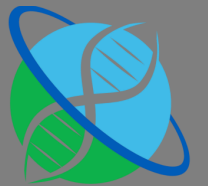
WHY RADIOPHARMACEUTICALS DON'T WIN

- “Bexxar / Zevalin history”
- Perceived & real complexity
- Logistics & half-life
- Referral
- Stakeholder economics
- Isolation
- Secondary cancer concern



WHY RADIOPHARMACEUTICALS SHOULD WIN

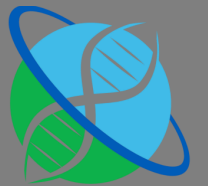
- Robust technology
- Truly targeted, well tolerated
- Theragnostic approach
- Some challenges diminish with more use
- Acceptance of more complex technologies
- “They work...”



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A SIMPLE CONCLUSION

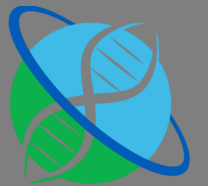
- Radiopharmaceuticals need to leverage their unique properties to succeed



A SIMPLE TRUTH

When directly competing with conventional therapies, radiopharmaceuticals will lose

Case in point:
Zevalin vs
Rituximab



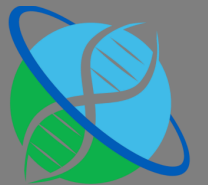
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A SIMPLE TRUTH

Case in point:
Lutathera vs.
Afinitor

When directly competing with conventional therapies, radiopharmaceuticals will lose

- Radiopharmaceuticals need to be clearly superior to conventional therapy
 - Efficacy
 - Safety



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HOW RADIOPHARMACEUTICALS CAN WIN

Leverage the unique properties of radiopharmaceuticals

Case in point:
PSMA-617

- Targets not druggable by ADCs and other agents
- Small targeting moieties
 - Peptides
 - Small molecules?
 - Aptamers?



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HOW RADIOPHARMACEUTICALS CAN WIN

Leverage the unique properties of radiopharmaceuticals

Case in point:
Actimab-A

- Low level of target expression
- Non internalizing targets
- Recycle failed naked antibodies or ADCs



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HOW RADIOPHARMACEUTICALS CAN WIN

Leverage the unique properties of radiopharmaceuticals

Case in point:
Iomab-B

- Leverage unique safety / efficacy profile
 - RPs tend to be highly effective and well tolerated



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HOW RADIOPHARMACEUTICALS CAN WIN

Criteria that benefit radiopharmaceuticals –
remove hurdles

Case in point:
Lutathera

- Simplification
- No isolation requirement
- Well defined target population with high unmet need
- Tertiary care > community



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HOW RADIOPHARMACEUTICALS CAN WIN

The past – last line use limiting revenue potential

- Responses where other drugs failed
- Tolerability critical
- No concern with secondary cancers
- “Compassionate Use”
- Inherently small patient population



HOW RADIOPHARMACEUTICALS CAN WIN BIG

RPs can only become mainstream therapies if they will be used more upfront

Case in point:
Fusion / AZ
collaboration

- Part of combination therapies
 - Replace chemo
 - Replace EBRT
 - Leverage mechanistic synergies
 - PD-(L)1, PARP etc.
 - Leverage abscopal effect
- MRD paradigm: adjuvant / maintenance
 - “Surgical kill” (α-emitters)



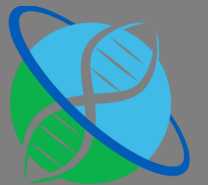
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MOLECULAR IMAGING TRACERS

Clinically compelling...

Case in point:
PSMA PyL

- Earlier & more accurate lesion detection
- Theragnostic approach
- Early response marker
- Cancer heterogeneity
- AI opportunity



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MOLECULAR IMAGING TRACERS

...commercially challenging

- Reimbursement (e.g., US, D)
- Technological improvements of conventional imaging
- Future challenge: liquid biopsy
- Need to make cost-effectiveness case
 - Change in management
 - Change in outcome



WHERE DOES THIS LEAVE US?

Radiopharmaceuticals are at a cross-road

- More interest than ever
- More competing technologies than ever require clear differentiation
- The future is use more upfront and in combination
- Can RPs become part of the “cure cancer” paradigm?

