Fusion Pharmaceuticals Inc.

Corporate Presentation

March 2021

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This presentation also contains estimates, projections and other information concerning our industry, our business and the markets for our product candidates. Information that is based on estimates, forecasts, projections, market research or similar methodologies is inherently subject to uncertainties and actual events or circumstances may differ materially from events and circumstances that are assumed in this information. Unless otherwise expressly stated, we obtained this industry, business, market, and other data from our own internal estimates and research as well as from reports, research, surveys, studies, and similar data prepared by market research firms and other third parties, industry, medical and general publications, government data and similar sources. While we are not aware of any misstatements regarding any third-party information presented in this presentation, their estimates, in particular, as they relate to projections, involve numerous assumptions, are subject to risks and uncertainties and are subject to change based on various factors.

Market data and industry information used throughout this presentation are based on management's knowledge of the industry and the good faith estimates of management. We also relied, to the extent available, upon management's review of independent industry surveys and publications and other publicly available information prepared by a number of third party sources. All of the market data and industry information used in this presentation involves a number of assumptions and limitations, and you are cautioned not to give undue weight to such estimates. Although we believe that these sources are reliable, we cannot guarantee the accuracy or completeness of this information, and we have not independently verified this information. While we believe the estimated market position, market opportunity and market size information included in this presentation are generally reliable, such information, which is derived in part from management's estimates and beliefs, is inherently uncertain and imprecise. No representations or warranties are made by the Company or any of its affiliates as to the accuracy of any such statements or projections. Projections, assumptions and estimates of our future performance and the future performance of the industry in which we operate are necessarily subject to a high degree of uncertainty and risk due to a variety of factors, including those described above. These and other factors could cause results to differ materially from those expressed in our estimates and beliefs and in the estimates prepared by independent parties.

Experienced Executive Team

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CEO

(Founder and CEO)

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CSO

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Rib-X Pharmaceuticals

Guilford Pharmaceuticals

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SNMI Society of Nuclear Medicine and Molecular Imaging

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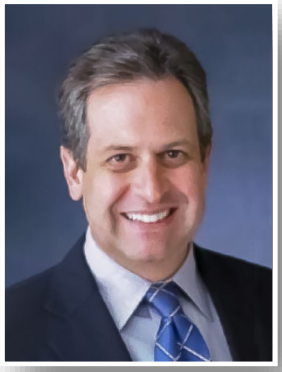


immunogen

Pfizer

Bayer

FDA

Maria Stahl
CLO

TetraPhase Pharmaceuticals

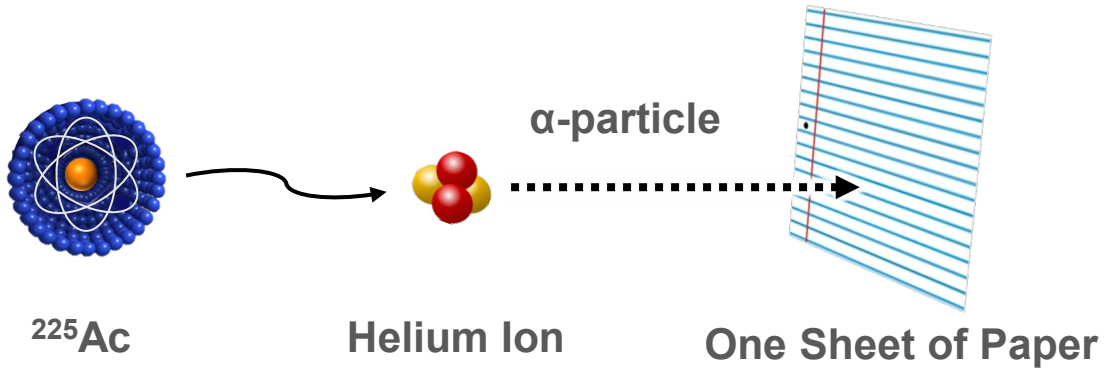
Idenix Pharmaceuticals

WilmerHale

Creating Next Generation Radiopharmaceuticals for Precision Oncology

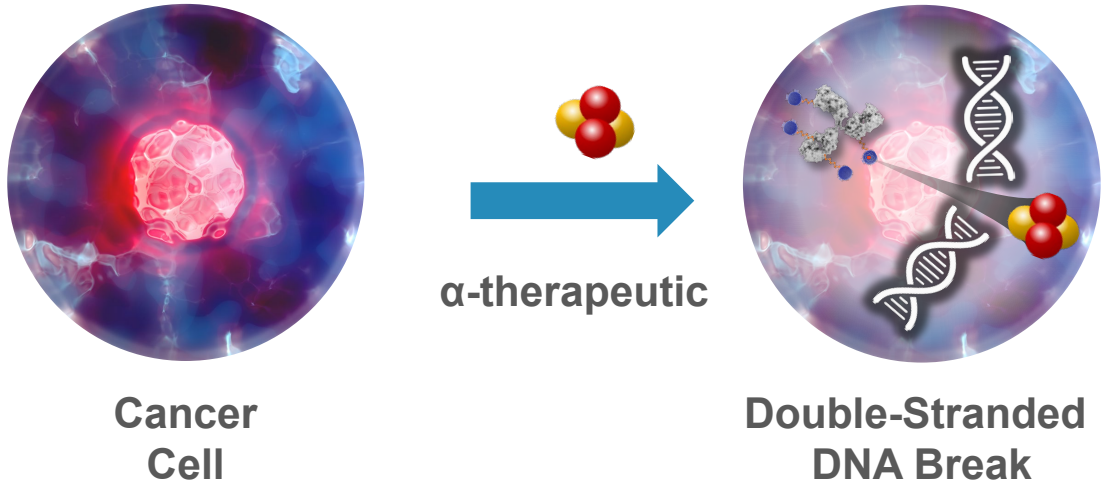
- **Precision medicine** approach to radiation therapy, a validated tumor-killing technology
- Lead clinical program targeting IGF-1R, showing uptake in **multiple tumor types**
  - **Recently advanced from single- to multi-dosing phase 1 study**
- **Proprietary *Fast-Clear*™** linker technology facilitates faster clearance of non-tumor localized drug, **improving the therapeutic window**
- **Platform technology** can be used with a range of different antibodies and other targeting molecules to enable **pipeline expansion**
  - **Recently signed long-term collaboration with AstraZeneca to develop novel TATs and combination therapies**
- Strong internal **R&D and manufacturing expertise and capabilities**, a barrier to entry into the radiopharmaceutical space that has recently experienced significant M&A and financing activity

What Are Alpha Emitters?



Properties:

- "Large" and energetic
- Travels a short distance (50-100μm)
- Easy to shield (paper)



Advantages for Cancer Treatment:

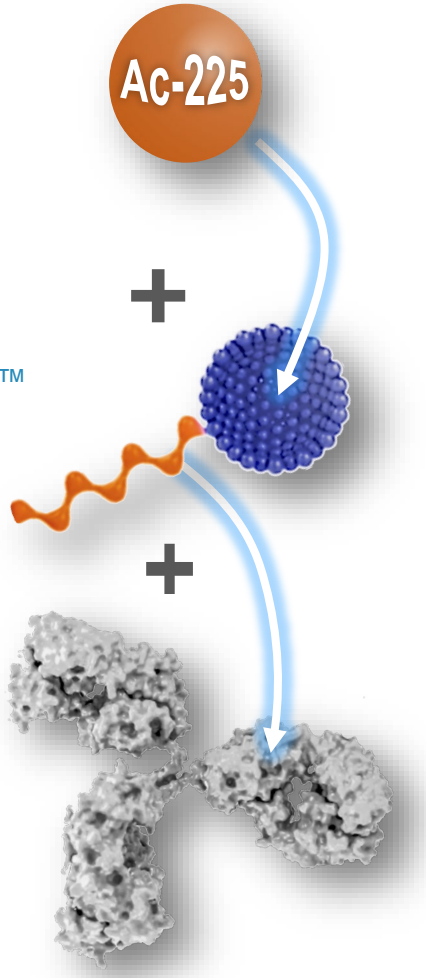
- Highly localized massive cell damage
  - No resistance mechanism known to multiple double-stranded DNA breaks
- Comparatively low doses required for cell kill
- Administered intravenously (out-patient)

Alpha emitters have proven to be clinically and commercially viable: e.g. Xofigo

Fusion's Next Generation Radiopharmaceuticals for Precision Oncology

Building Blocks

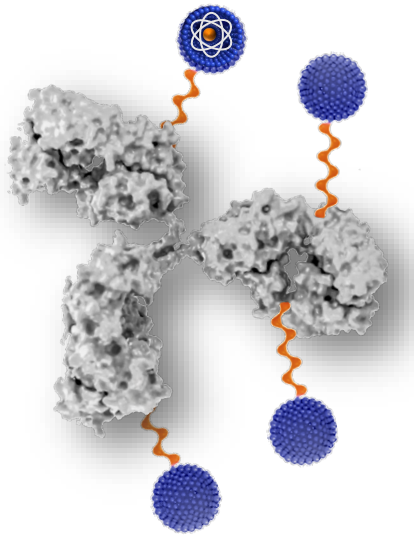
Actinium-225
Alpha-emitting
Isotope



Proprietary
Fast-Clear™
Linker

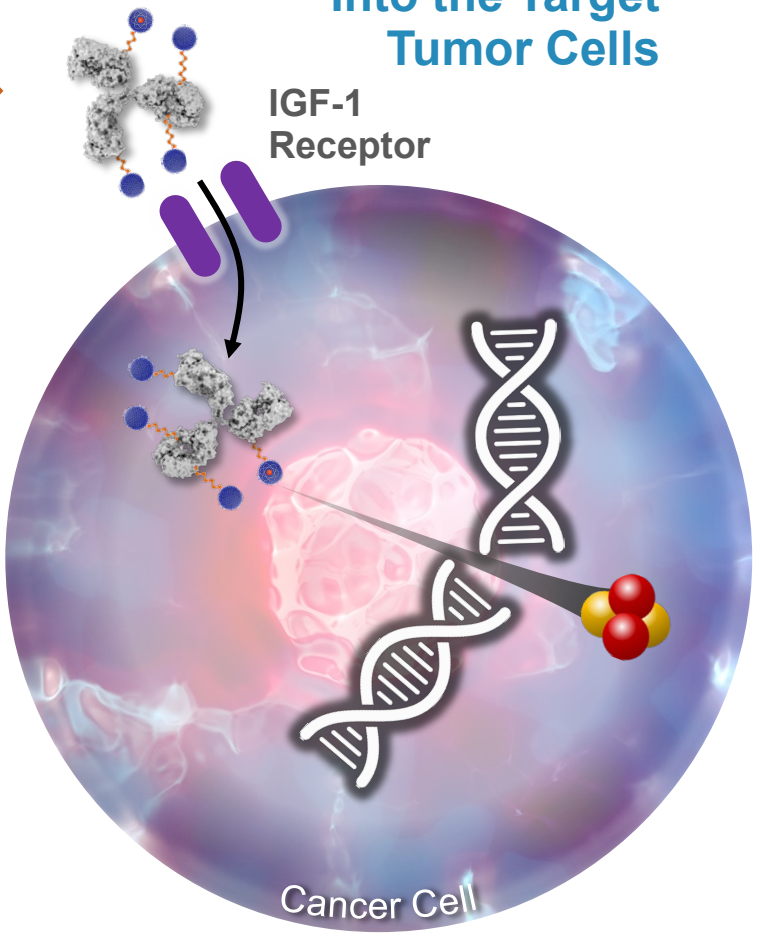
Proprietary
Targeting
Antibody
As Carrier for
Linker+Ac-225

Targeted Alpha Therapy (TAT)



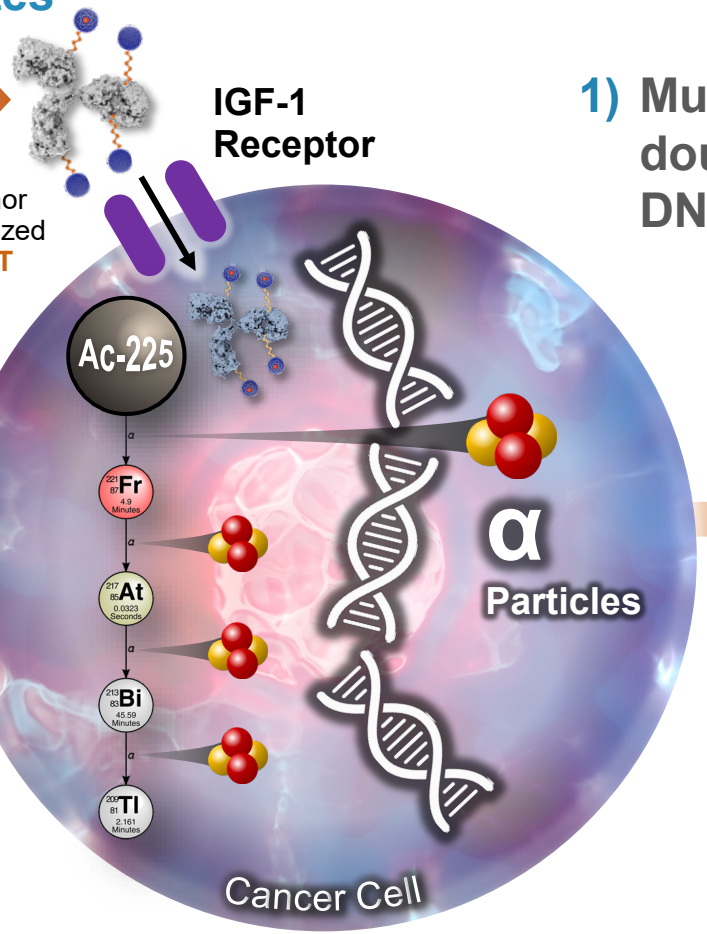
Injectable,
Low Protein
Dose

TAT Penetrates Into the Target Tumor Cells



TATs: Multiple Mechanisms of Action

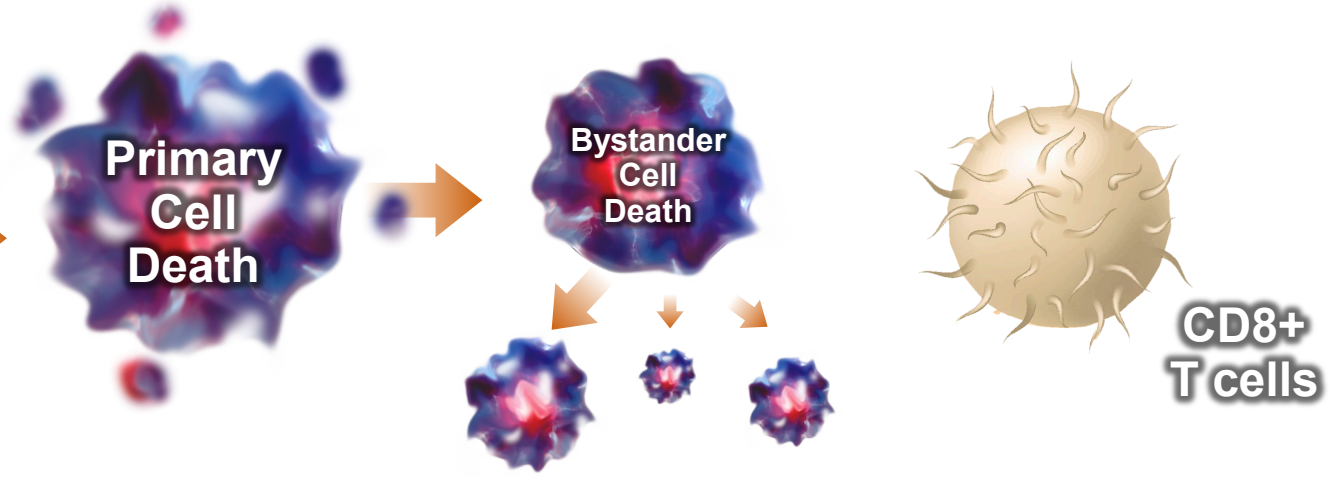
TAT Penetrates Into the Target Tumor Cells



Ac-225 decay yields 4 alpha particles

Multiple Mechanisms of Action of a TAT

1) Multiple lethal double-stranded DNA breaks
2) Bystander effect
3) Potential vaccine effect



Fusion's research into the underlying biology of alpha emitting radiopharmaceuticals led to the understanding of our TATs' multiple mechanisms of action

TAT platform's advantage over ADCs

TAT has higher potential efficacy and better tolerability

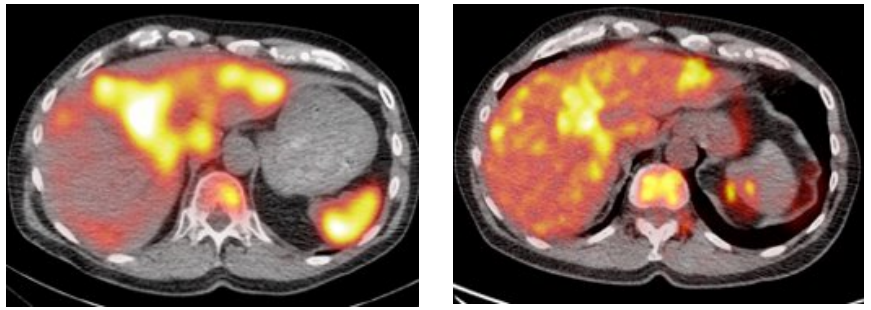
Key Property	TAT	ADC
Bystander effect providing efficacy in heterogeneous tumors	✓	✓*
Ability to incite an immune response against tumor cells	✓	✓*
Effective in tumors with low target receptor expression	✓	✗
Low toxin concentrations and recycling resulting in better tolerability	✓	✗
Effective against both dividing and non-dividing cells	✓	✓*
Built in biomarker for patient selection	✓	✗
Easy administration	✓	✓

* May have property (e.g., dependent on cytotoxin, linker)

- An underperforming ADC may convert to a **highly effective TAT but not vice versa**

TAT development de-risked by use of theranostic imaging for earlier PoC

TAT uptake (left) correlates to lesion uptake in FDG PET (right) - confirms target uptake and identifies off-target tolerability issues

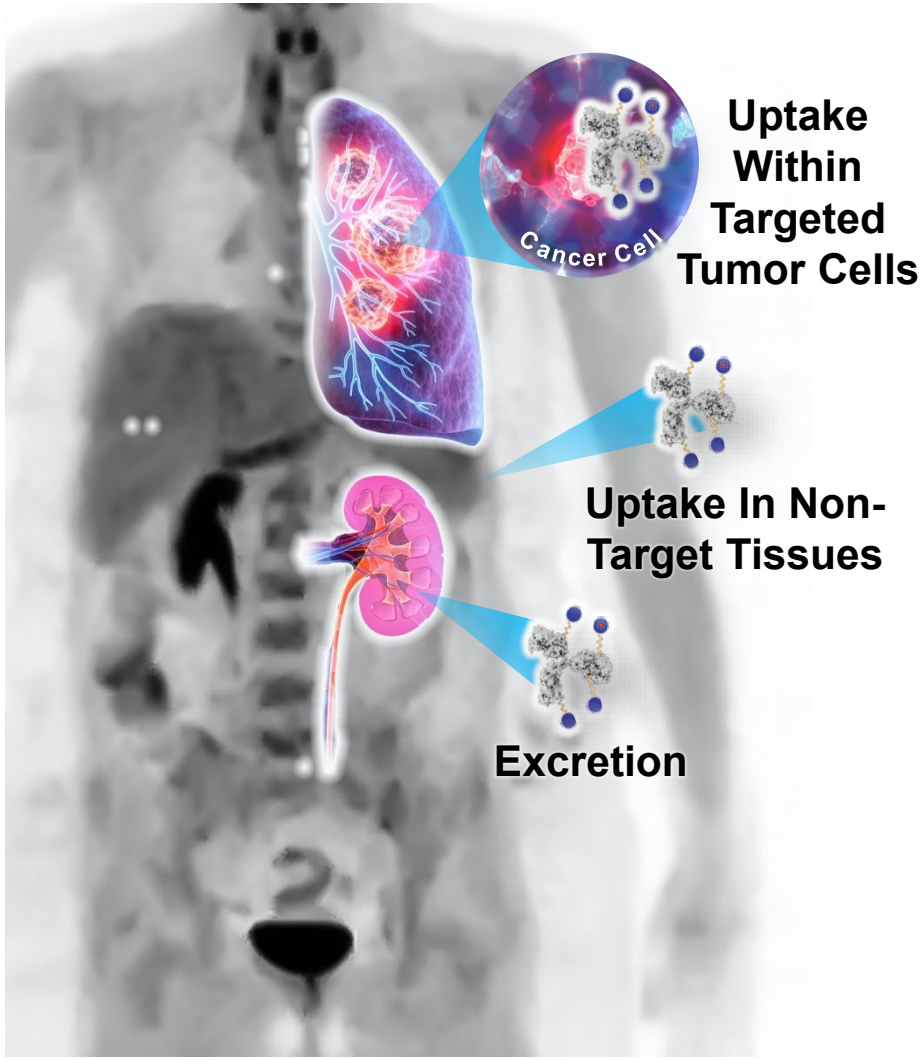


Proven applicability with a wider array of targeting modalities

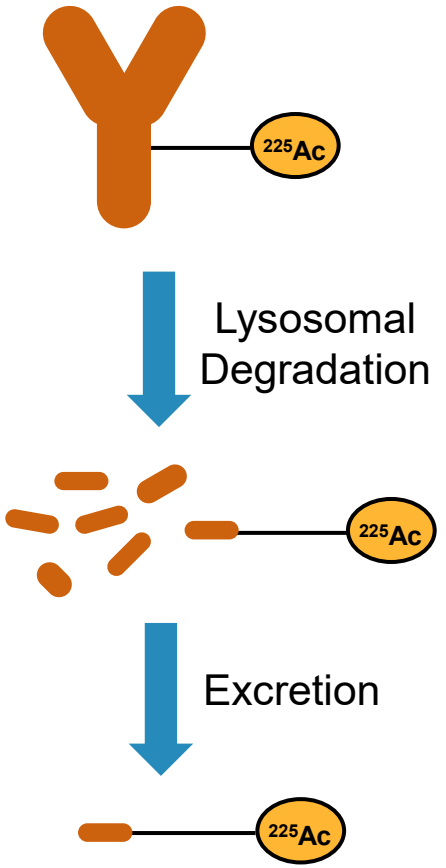
- Delivery of medical isotopes has been **clinically demonstrated with almost all potential vector types** (e.g., antibodies, peptides, small molecules)
- Delivery of cytotoxic payloads has **limited clinical validation outside of antibodies**

Fusion's *Fast-Clear*™ Linker Technology

Fast-Clear™ Enhances TAT Distribution Ratio

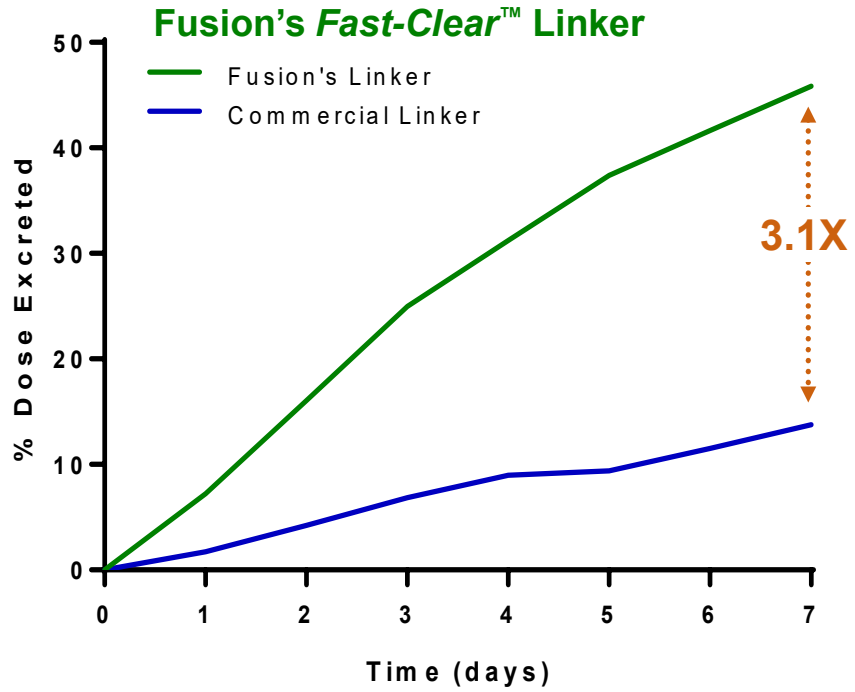


Excretion Process



Fast-Clear™ Linker Enhances Clearance of Non-Tumor Localized TAT in Mice

- ✓ **Same tumor uptake and efficacy**
- ✓ **Faster and improved excretion**



R&D Engine with Rapid Development Capabilities

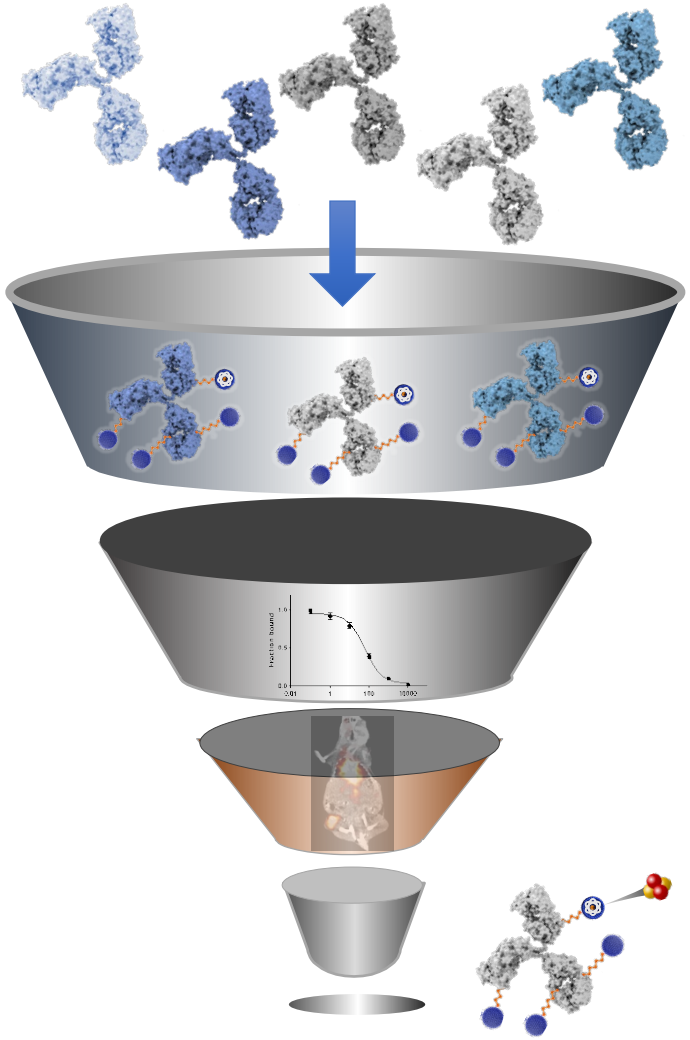
Targeting Molecule Leads

Radiolabel

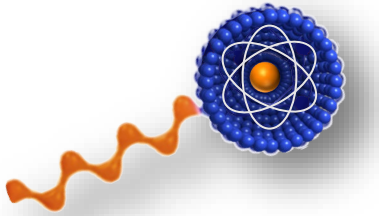
Assess Target Binding in vitro

Biodistribution in Tumor Model

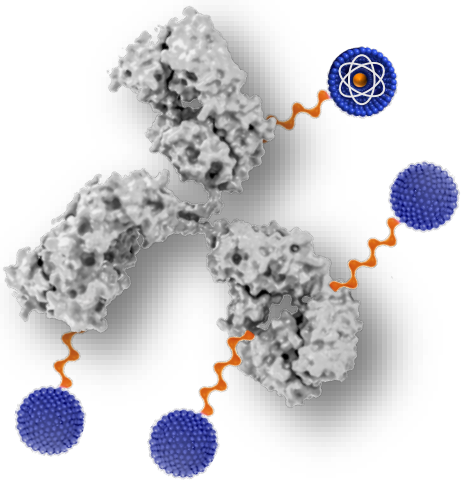
30 Day Efficacy Study



Adding Fusion's Linker Technology promotes rapid excretion and improved therapeutic window



Creates Potent TAT

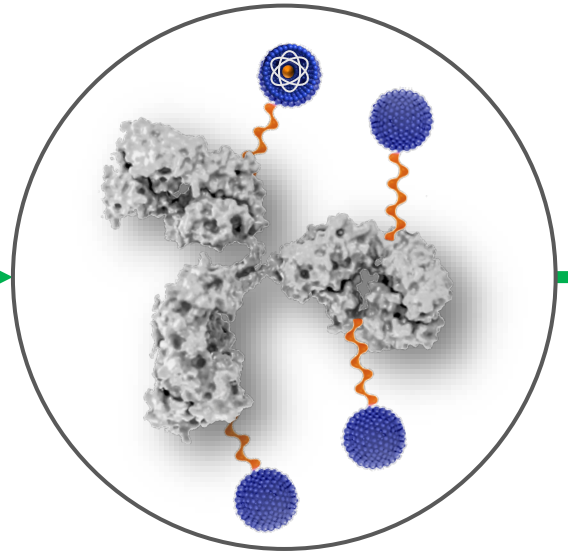


Fusion's platform has shown ability to generate leads in 6 to 9 months

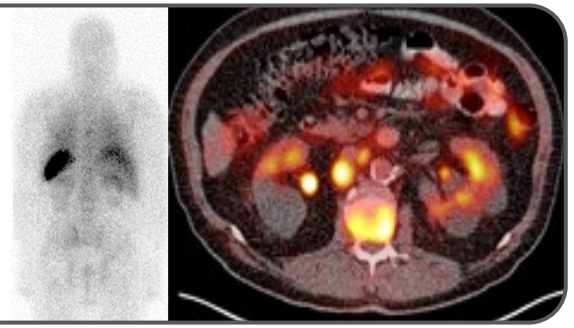
Use of Imaging Diagnostics to Enrich Target Populations

- Imaging analogues of TATs utilize the same targeting molecule and linker
- Replace Ac-225 with imaging isotope, In-111

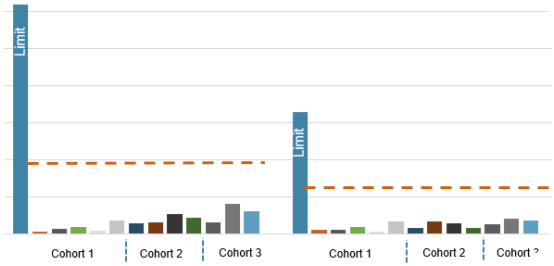
Medical Imaging Analogue



Medical Imaging to Enrich Target Population



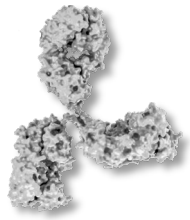
Dosimetry To Assess Safety to Key Organs



Imaging allows assessment of uptake into the targeted tumor and dose to normal organs

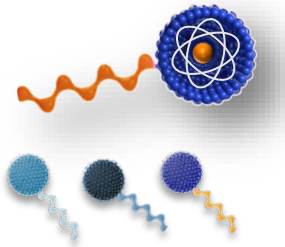
Established Manufacturing Process and Supply Chain
Core Competitive Advantage

Antibody Production



Multiple Sources

Library of *Fast-Clear*™ Linkers



Isotope Production

Ac-225

In-111

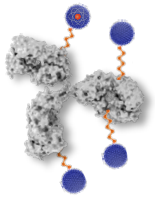
U.S. DEPARTMENT OF ENERGY

TRIUMF

Radiopharmaceutical Manufacturing

World-class GMP manufacturing

cpdc



CardinalHealth™

Multiple Sources

Hospitals and Clinics

Standing goals as lead program advances and pipeline expands:

- Continue strengthening supply chain advantage
- Scale manufacturing

Fusion's Platform and Capabilities Lead to Multiple Development Opportunities

Fusion Programs

	Early Discovery	Radiopharma Optimization	Preclinical Development	Phase 1	Phase 2	Phase 3
FPI-1434	Solid Tumors Expressing IGF-1R					
FPI-1966	Head & Neck and Bladder Cancers Expressing FGFR3					
FPI-2059 (IPN-1087)	Solid Tumors Expressing NTSR1					
FPI-1434 Combination	Solid Tumors Expressing IGF-1R					
Early Pipeline Targets not disclosed	Solid Tumor Solid Tumor Solid Tumor					

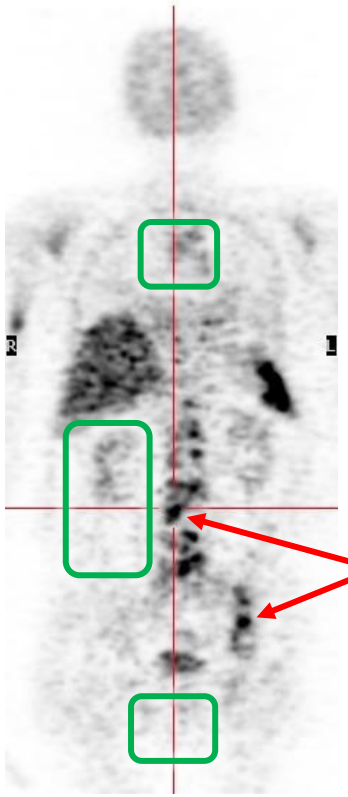
Partnered Programs

	Early Discovery	Radiopharma Optimization	Preclinical Development	Phase 1	Phase 2	Phase 3
AZ Novel TATs (Up to 3) Targets not disclosed						
AZ Combinations (Up to 5) Targets not disclosed						

FPI-1434 – Fusion's Lead Program: IGF-1R Targeted Alpha Therapeutic Monotherapy

- **IGF-1R: Ideal alpha therapeutic delivery mechanism**
  - Over-expressed on the surface of cancer cells
  - Low expression on surface of normal tissue
  - Rapidly internalizing receptor to concentrate alpha-particles inside tumor cells
- **MOA: Alpha particle-based cell kill – NOT based on blocking the IGF-1R pathway**
  - IGF-1R is used only to identify and deliver the alpha emitting payload to the tumor
- **Strategy leverages prior investments – toxicology package and antibody manufacturing**
- **Imaging demonstrates uptake in tumors**
- **Fusion converted an IGF-1R antibody with poor clinical efficacy into a therapeutic candidate in less than 1 year**
- **Currently in a dose escalation Phase 1 clinical trial**

Fusion previously showed antibodies can selectively target tumors expressing IGF-1R



PET

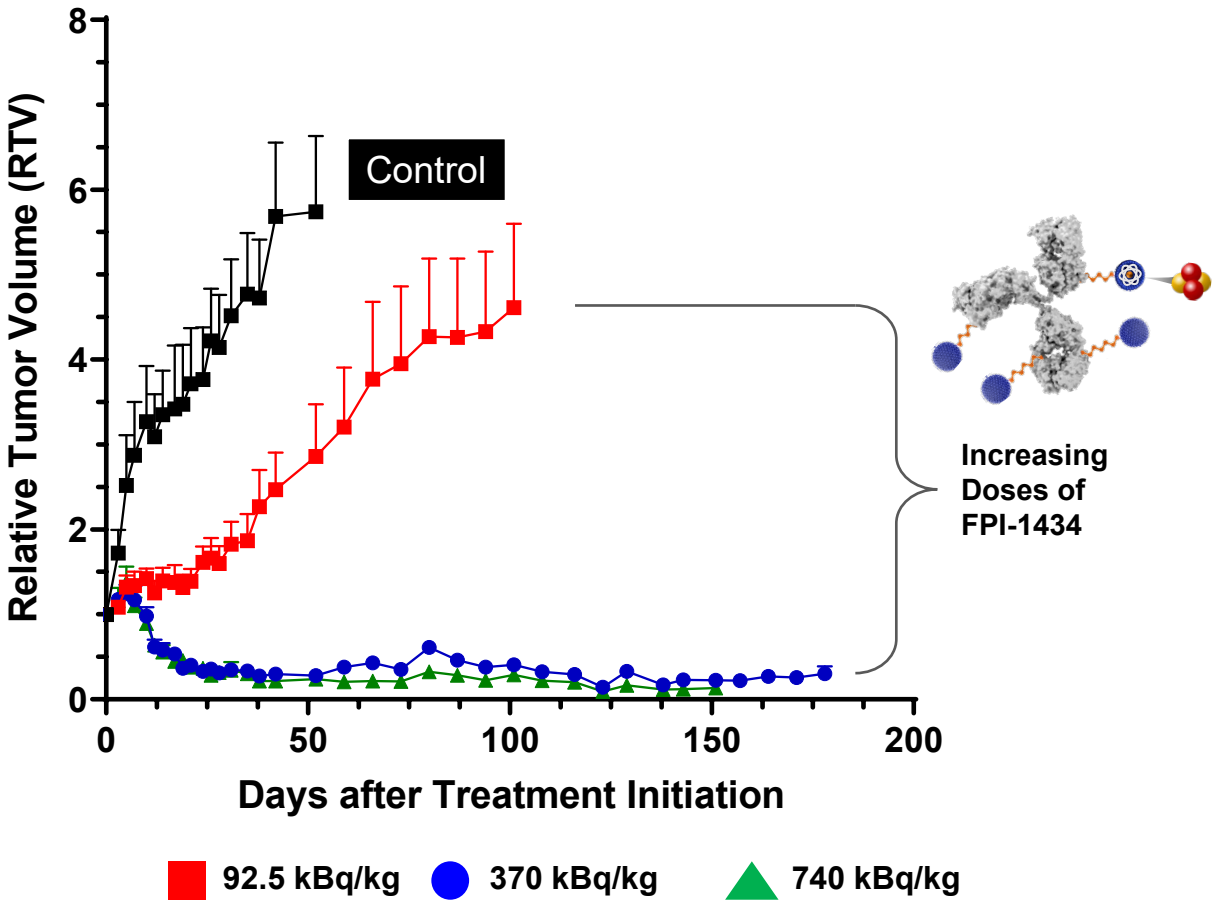
Imaging shows targeted uptake in known metastases with lack of uptake in normal tissue with IGF-1R expression: heart, GI tract, lung, testes

Bone Metastases in Spine & Hip

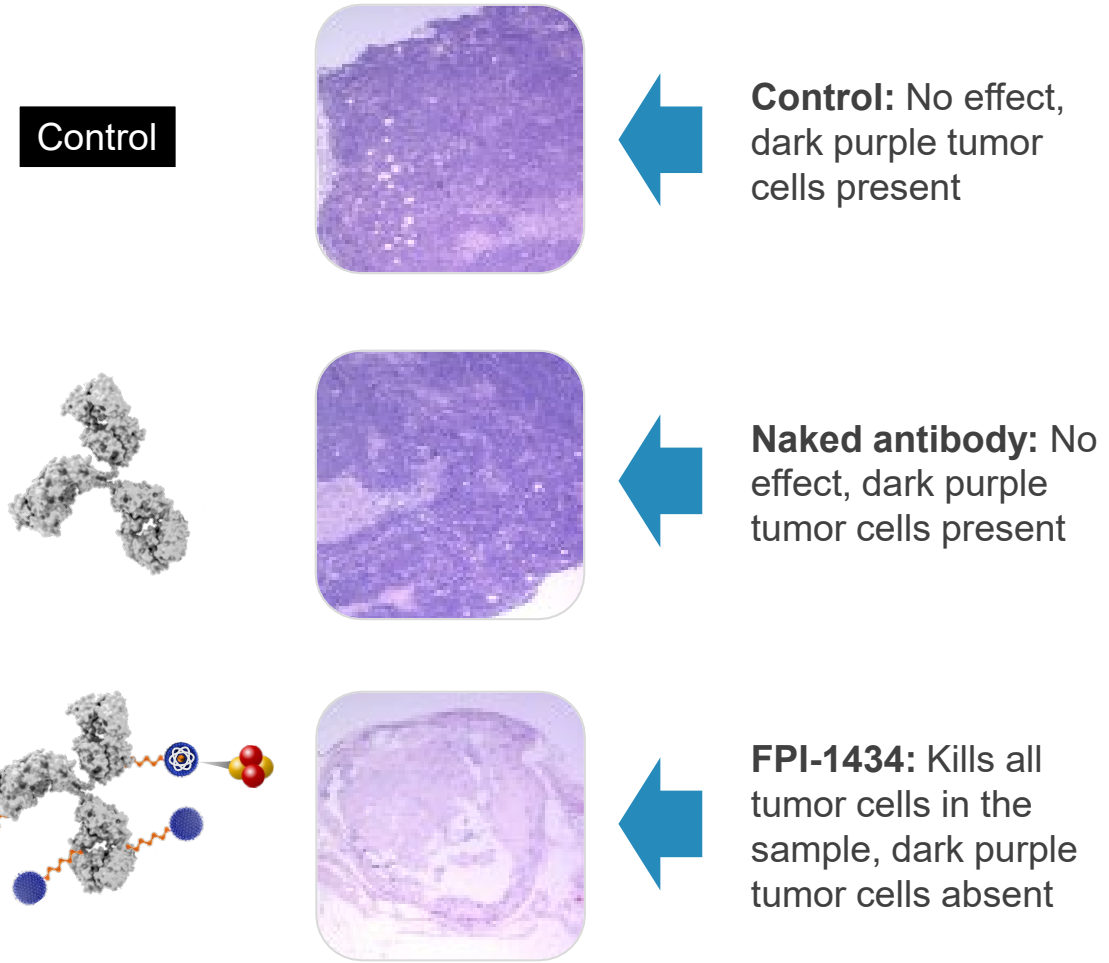
Normal Tissues Expressing IGF-1R

Single Dose Eradicated Tumors in Mice

Single Dose Eradicated Tumors in Preclinical Model
(CRC xenograft mouse model)

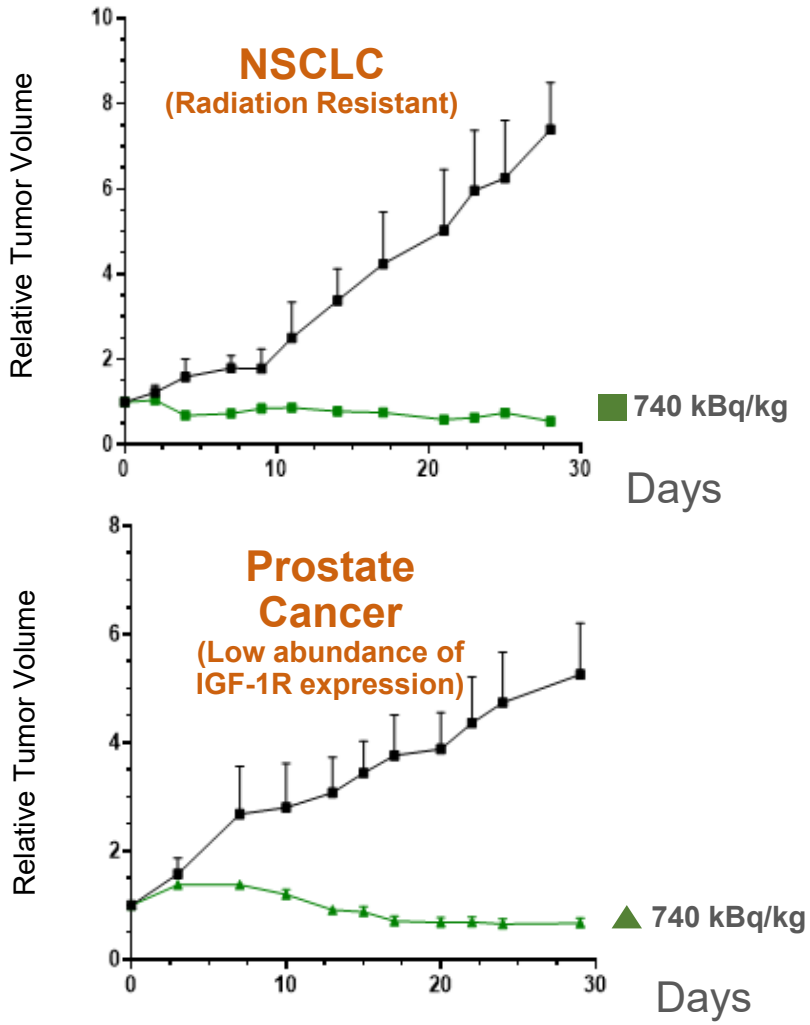


Histological Eradication of Tumors by Pathology
(H&E tumor cell staining following treatment)



Compelling Anti-Tumor Activity Across Multiple Tumor Models and Tumor Sizes

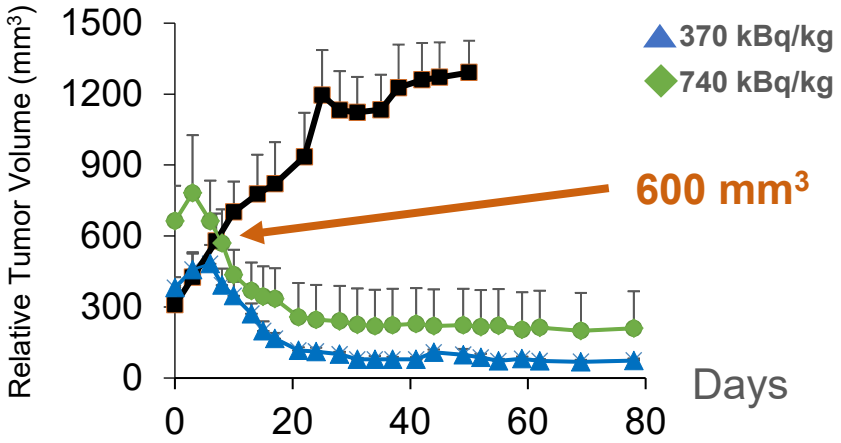
Different Tumor Types



Data Show:

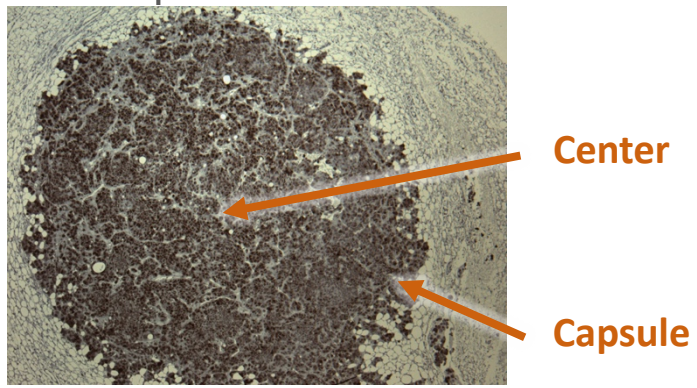
- Ability to **kill tumors of various types with a single dose**
- Ability to **kill both large and small tumors**
- Ability to **penetrate tumor** with alphas using the right targeting agent

Large Tumors



Depth of Tumor Penetration

Black dots represent double-stranded DNA breaks



96 h

Preclinical Toxicology Program

Overview

- FPI-1175 (naked IGF-1R antibody) – single and multiple dose studies
- Dosimetry study with imaging form of FPI-1434
  - Assesses radiation organ exposure to normal tissue
- Dose range-finding study with FPI-1434
- GLP late radiation toxicity study with FPI-1434 (IND-enabling study)

Findings

- The dose limiting toxicity is myelosuppression, which is reversible
- No evidence of toxicity to kidney, bladder, intestines, or lung
  - FDA approved FPI-1434 IND without the need to give Spironolactone to protect against potential kidney toxicity

Preclinical data supported moving into Phase 1 trial

FPI-1434 – Overview of Clinical Trial and Timelines

Phase 1
Single-Dose

- ✓ Single-dose cohorts complete
- ✓ FPI-1434 well tolerated; no DLTs or SAEs related to study treatment
- ✓ Safety Review Committee supports moving to multi-dose portion

Phase 1
Multi-Dose

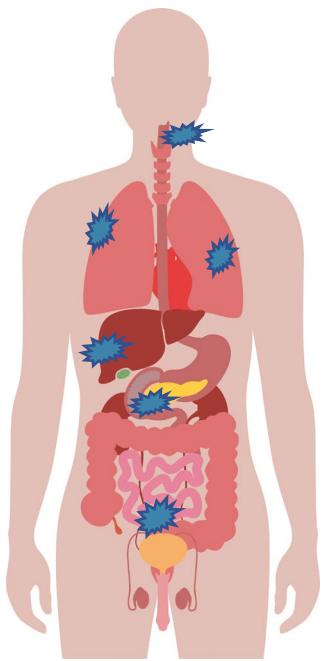
Data for Multi-Dose Treatments:
Imaging, dosimetry, safety and response data
Recommended Phase 2 dose and regimen
Anticipated in first half 2022

Phase 2a Study Initiation
Simon 2-stage design in 2-3 cohorts

- Variability in clinical trial duration attributable to timing of potential DLT observations
- Timeline assumes no enrollment interruptions related to COVID-19 pandemic

IGF-1R Is Over-Expressed On Multiple Tumor Types

Target Broadly expressed in tumor cells

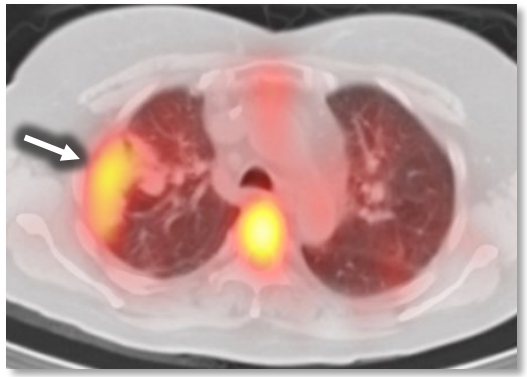
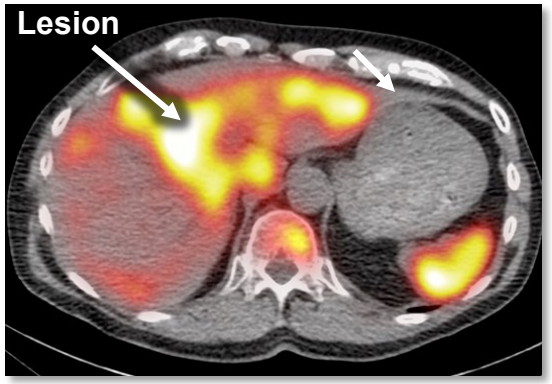
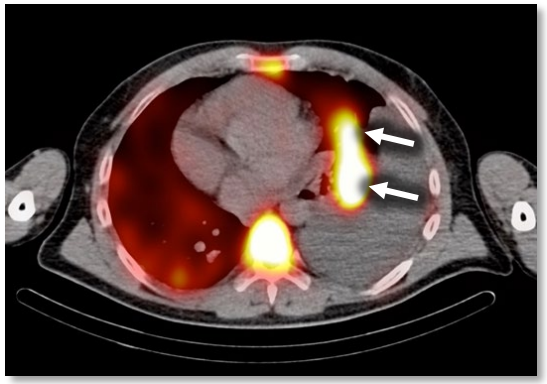
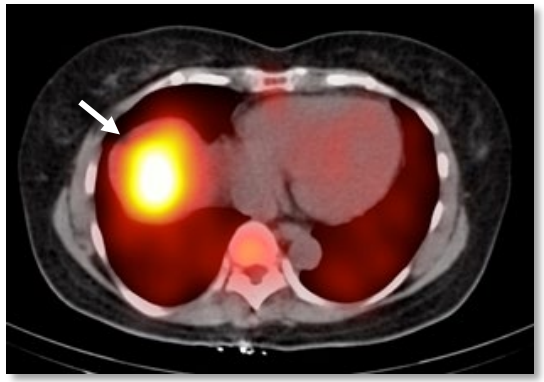
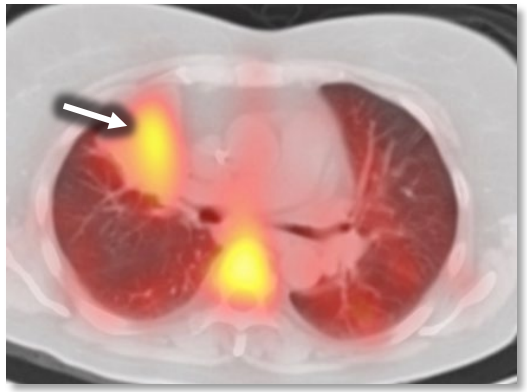
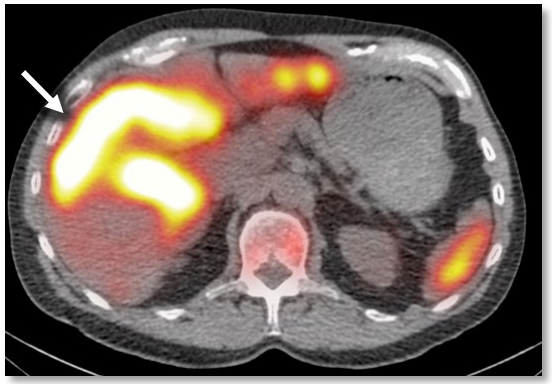
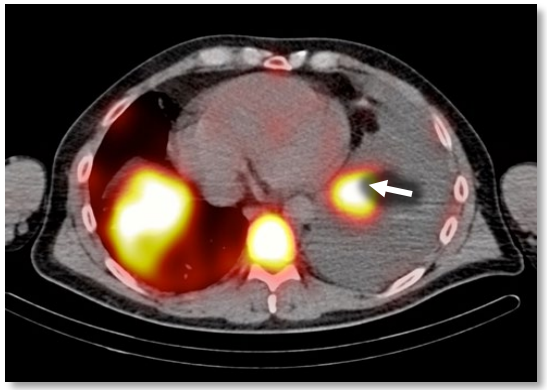
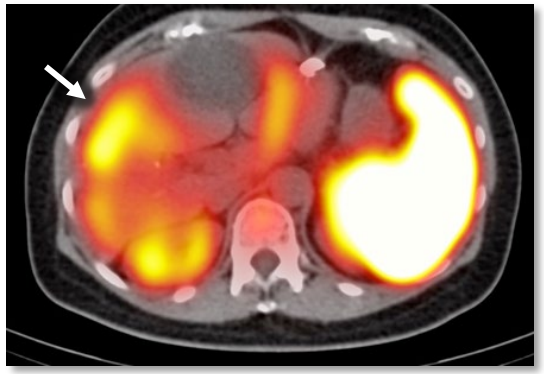


	% Patients with IGF-1R Expression
Ovarian	100%
Bladder	100%
Sarcomas	90%
Head and Neck	62%
Prostate	62%
NSCLC	59%
Pancreatic	57%
Colorectal	50%
Liver	50%
Breast	47%
Small Cell Lung	43%
Esophagus	40%
Renal	36%
ACC	36%

A multi-tumor targeted radiopharmaceutical with potential for broad clinical utility

Tumor Uptake Has Been Observed In Different Types of Solid Tumors

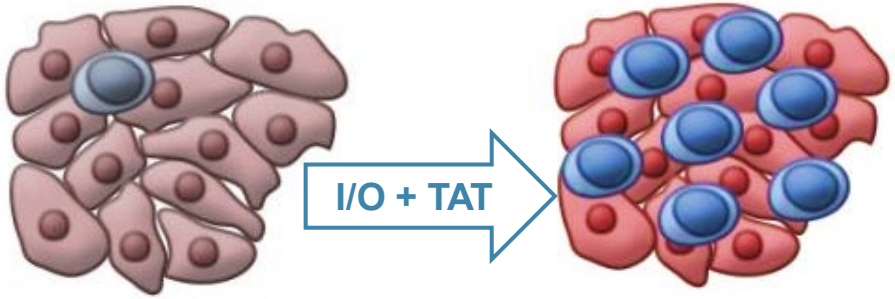
Phase 1 Trial SPECT Imaging of Four Patients with Different Cancer Types (Transaxial Views)

Ovarian Pt # 204-007	Prostate Pt # 202-008	Sarcoma Pt # 204-002	CRC Pt # 204-008
			
			

FPI-1434 Combination Therapy Programs

Immuno-Oncology

Turning I/O "resistant" tumors into I/O "sensitive"



Immune desert
"cold tumor"

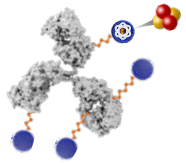
Immune responsive
"hot tumor"

Enhancing antigen presentation and stimulating T-cell recruitment: "Radiation Activation and Vaccination"

DNA Damage Response Inhibitors (e.g., PARPi)

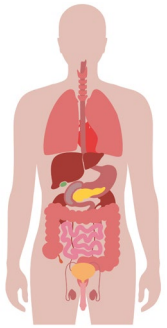
FPI-1434 = DNA Damage : DDRis Prevent DNA Damage Repair

Current Market:
DDRi Monotherapy



DDRi Future Market:
Expanded with FPI-1434

DDRi + TAT



H&N
Recurrent Thyroid
Pancreatic / NETs
Adrenocortical carcinoma
Sarcomas

Combination expands accessible indications and reduces required doses

Utilize synergies with leading therapies to potentially move FPI-1434 up in the treatment paradigm

Fusion has patent applications filed on combination therapies

Fusion is Pursuing a Range of Opportunities to Build the Pipeline

TAT Clinical Combination

I/O	*DDRi Market*	*DDRi Novel*
PD-1/ CTLA4/etc. (abscopal effect)	PARP	ATM, ATR, DNA-PK, etc.

New Targeting Strategies

Protein Platform	*Payload Carrier*
Small molecules, camelids, nanobodies, others	Chelates/linkers and enhancement of PK and other properties

New Programs

Sourcing Targeting Molecules
Novel, existing (discontinued or LCM), single or multi-asset in-licensing/partnership

Building a pipeline with new assets, clinical combinations and technologies

FPI-1966: Targeting Fibroblast Growth Factor Receptor 3 (FGFR3)

Rationale

1) **FGFR3 is a validated cancer target** that is overexpressed on bladder and H&N cancers
   - FDA approved a pan-FGFR inhibitor for the treatment of bladder cancer with genetic alterations (i.e., translocation mutation)
2) **Potential clinical advantage:** An FGFR3-TAT may be more efficacious given the potency/MOA of a TAT
3) **Larger patient population / new indications:** Kinase inhibitor can only pursue mutations that cause cancer while a TAT can pursue the causative and/or correlative mutations of a cancer

Fusion's Approach

- An FGFR3-targeted TAT can address both driver and passenger mutations to deliver lethal radiation to the tumor
- Fusion acquired Vofatamab (naked anti-FGFR3 mAb) for conversion into a TAT
  - Vofatamab previously demonstrated good safety and tolerability in clinical trials in approximately 140 patients, most with advanced bladder cancer

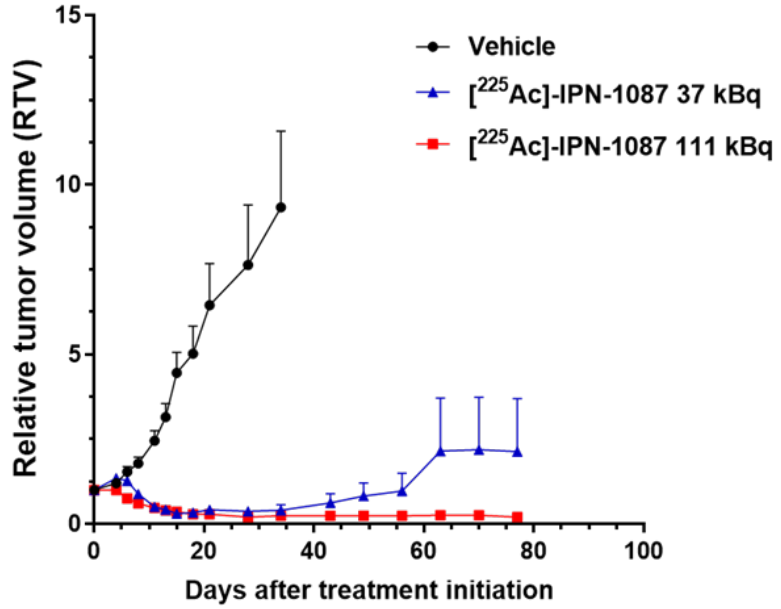
Next Steps:

- Fusion will apply its refined process used with FPI-1434 to Vofatamab development
- IND planned for 1H 2021

FPI-2059 - A Novel Small Molecule TAT

- IPN-1087 **proven ability to deliver radiometals to tumors** in multiple cancer types makes it a promising candidate for targeted alpha therapy with ^{225}Ac
- Preclinical data with ^{225}Ac labeled IPN-1087 **show single dose tumor kill**
- Fusion will leverage its expertise to **quickly move** the ^{225}Ac labeled IPN-1087 (FPI-2059) **into clinical development**

^{225}Ac IPN 1087 Shows Single Dose Tumor Kill In Preclinical Models



New Collaboration Agreement Overview

Fusion Pharmaceuticals Inc. + AstraZeneca

1) Novel Targeted Alpha Therapies

- Jointly select up to three new TATs
- Co-fund
- Co-develop
- Option to co-commercialize in U.S.

2) Combination Therapies with TATs

- DNA Damage Response Inhibitors (DDRis)
- Immuno-Oncology Agents
- AZ solely funds unless Fusion opts-in

Allows Fusion to expand pipeline & retain rights to existing products

Financial Highlights

$299.5M
Cash, Cash Equivalents & Investments

Balance Sheet as of 12/31/20

Cash to Fund Operations Through
End of 2023

Expected Cash Runway

41.7M
Basic Shares

Outstanding as of 12/31/20

Scalable platform & capacity to support multiple programs

Future Key Milestones by Program

Milestone	Timing*
FPI-1434 Mono	
• Phase 1 Multi-Dose Data	1H 2022
FPI-1434 Combo Studies	6 – 9 months following RP2D in monotherapy
FPI-1966	
• IND Submission	Q2 2021
FPI-2059	
• IND Submission	1H 2022

*Timelines assume no additional disruptions of pre-clinical or clinical activities resulting from the COVID-19 pandemic

Fusion Pharmaceuticals Inc.

Thank You

www.FusionPharma.com