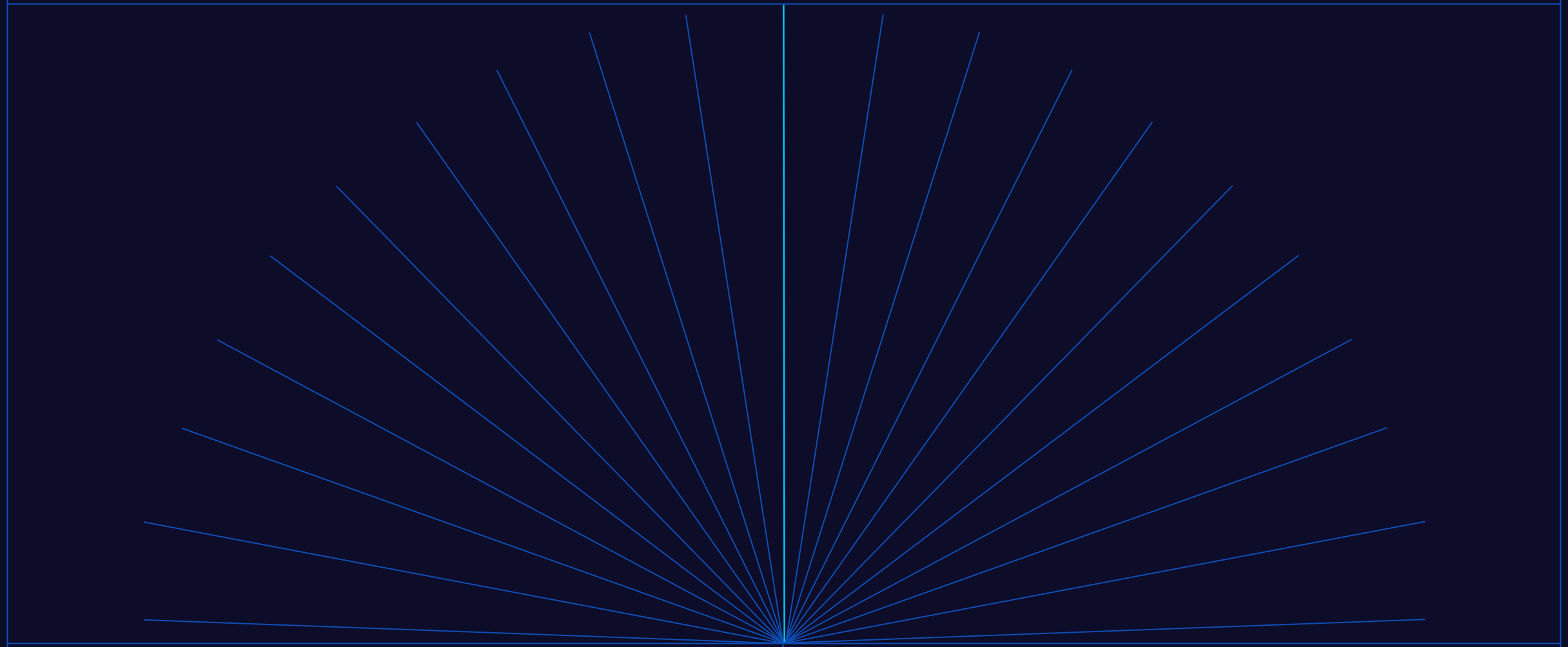

Sleuth

Sleuth Intel Hub

Radiopharma Intelligence Report, Q3 2026

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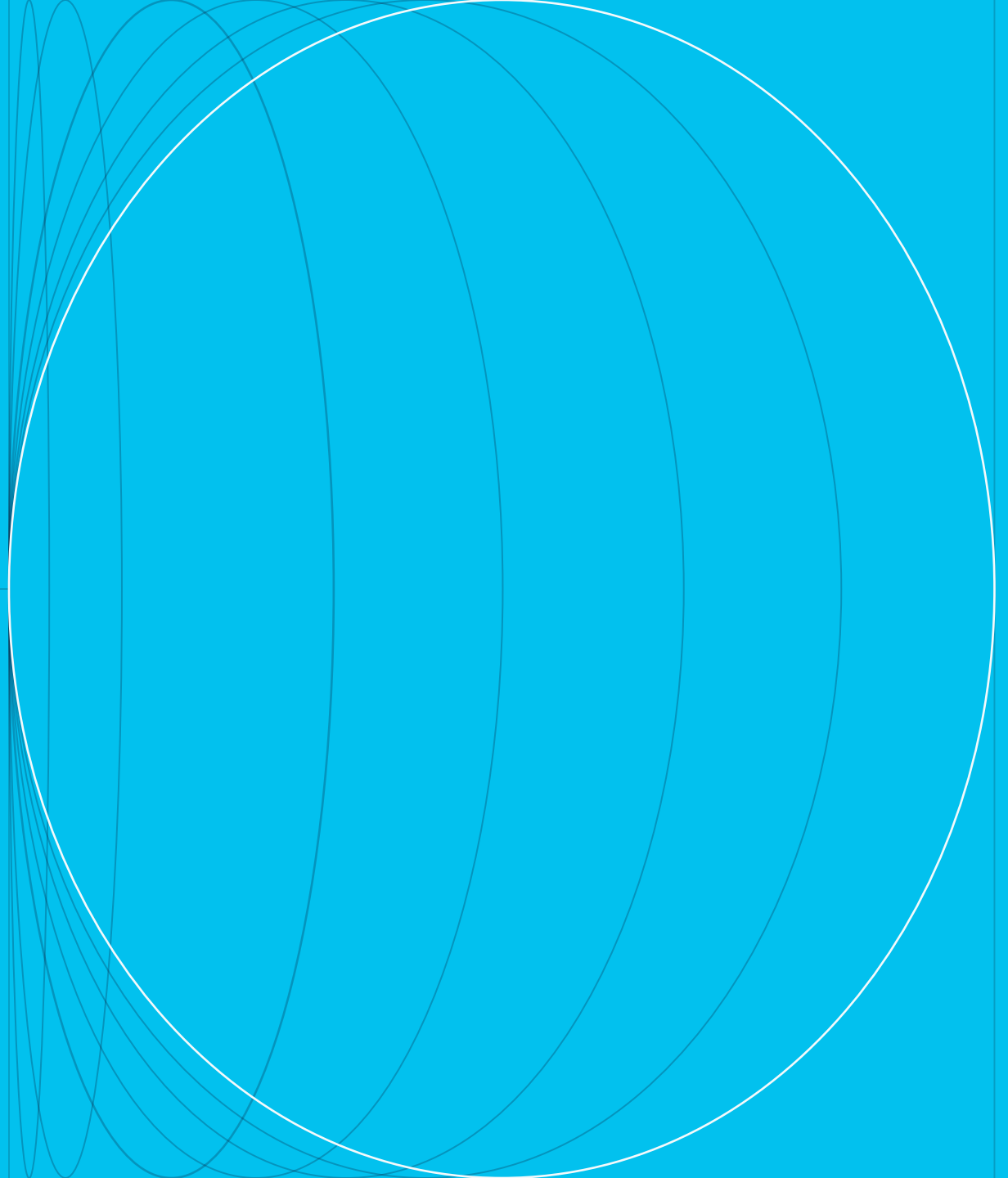
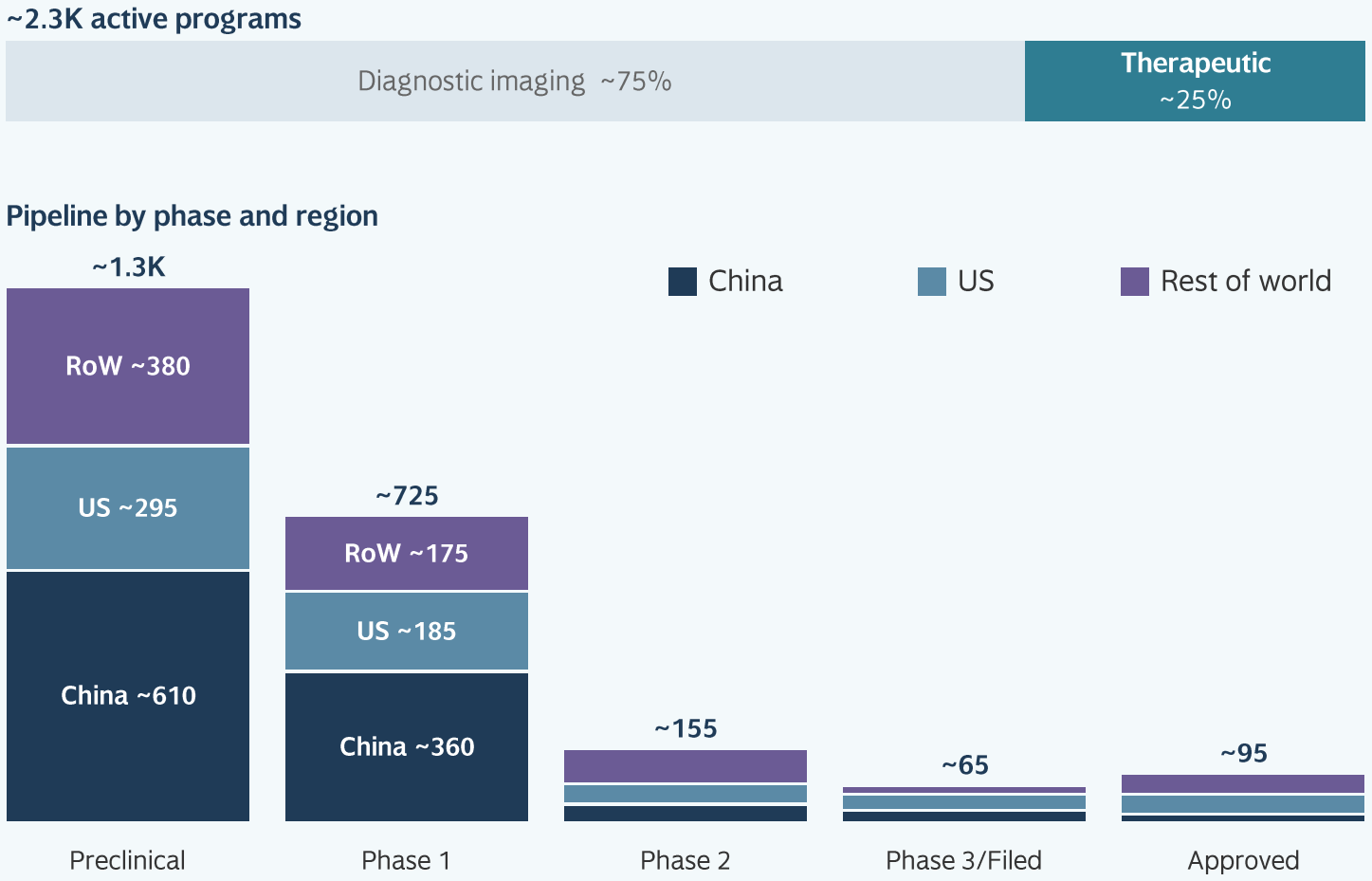


Gen-1 RLT is already a multi-$B market, but the next wave is early and in China

About 1 in 4 active programs is therapeutic, while the remainder is diagnostic imaging



- Radiopharma is mostly diagnostic imaging, with therapeutics concentrated among radioligand therapies
- Gen-1 RLT (Pluvicto, Lutathera) is already a multi-billion-dollar commercial market, while the next wave of new targets and alpha emitters is still early-stage
- China has become the largest originator (~1.0K of ~2.3K active programs) but the assets skew early and are similar in composition to the West (i.e., same targets, modality mix, isotopes)

Active radiopharma programs by phase and origin

Approved RLTs are all Lu-177, with Ac-225 and Pb-212 leading alpha emitters

Other approved agents are older and non-RLT, with an approved alpha emitter, Ra-223 Xofigo, targeting bone

Radiopharma Therapeutics Competitive Map by Isotope and Development Stage

Highest Stage of Development (by company, by isotope)

Isotope	Preclinical	Phase 1 & 1/2	Phase 2	Phase 3 / Reg.	Approved
Lu-177	FULL-LIFE [RLT], SERB Pharmaceuticals [RIT], starpharma [RIT], ImaginAb [RIT], TRANSCENTA INNOVATE TO EXCEL [RIT], VitsGen [RLT], IRONFIST [other], Immunobio [RIT]	FOSUN PHARMA 复星医药 [RLT], ARICEUM [RLT], Monopar Therapeutics [RIT], RAD [RIT], AFFIBODY [RLT], KELUN-BIOTECH [bone], alpha9 ONCOLOGY [RLT], Immunome [RLT], 博锐创合 BoomRay [RLT], Philogen innovating targeting [RLT]	BRACCO [RLT], 东诚 DONGCHENG [RLT]	Telix [RIT], LANTHEUS [RLT], CURIUM [RLT], itm [RLT], PeptiDream Revolutionizing Drug Discovery [RLT], Sinotau [RLT], HENGRUI [RLT], FUTURECHEM [RLT], MEDNOVO [RLT], CellBion [RLT]	NOVARTIS [RLT]
Ac-225	Telix [RIT], itm [RLT], CELLECTAR BIOSCIENCES [RLT], Monopar Therapeutics [RIT], CLARITY PHARMACEUTICALS [RLT], SK biopharmaceuticals [other], 博锐创合 BoomRay [other], VitsGen [RLT], GI Therix [RIT], 智核生物 SmartNuclide [RIT]	Johnson & Johnson [RIT], BAYER [RLT], PeptiDream Revolutionizing Drug Discovery [RLT], BRACCO [RLT], AKTIS [RLT], Abdera Therapeutics [RIT], Ratio THERAPEUTICS [RLT], ARICEUM [RLT], FULL-LIFE TECHNOLOGIES [RLT], Sinotau [RLT]	Actinium Pharmaceuticals We Nuke Cancer [RIT], Convergent THERAPEUTICS [RIT]	NOVARTIS [RLT], Bristol Myers Squibb [RLT], AstraZeneca [RLT]	
I-131	IODAX [RLT], Nuclide Therapeutics [RLT]		CELLECTAR BIOSCIENCES [RLT]	Telix [RLT], Actinium Pharmaceuticals We Nuke Cancer [RIT]	CURIUM LIFE FORWARD [NaI], PeptiDream Revolutionizing Drug Discovery [MIBG], Huasun 华神科技 [RIT], Shanghai MediPharm [RIT], Radioiodine (NaI) — multiple suppliers [NaI]
Y-90		PENTIXAPHARM [RLT], MEDNOVO 康诺亚医疗 [SIRT], ARCHEUS [RLT], VIVOS INC. [other], BetaGlue THERAPEUTICS [other]	Telix [RIT]	ABK BIOMEDICAL [SIRT], NRT [SIRT]	Boston Scientific [SIRT], CURIUM LIFE FORWARD [other], ACROTECH BIOPHARMA [RIT], CGE 远大健康 遠大醫藥集團 GRAND PHARMACEUTICAL GROUP [SIRT], Biocogency /BEBIG [SIRT]
Pb-212	Lilly [RLT], 博锐创合 BoomRay [RLT], Bicycle [RLT], 东诚 DONGCHENG [RLT], Sukang Pharma [RLT/RIT]	Roche [RIT], PERSPECTIVE THERAPEUTICS [RLT], ARTBIO [RLT], MOLECULAR partners [RLT]	RadioMedix INNOVATING THERANOSTICS [RLT], oranomed [RLT], AdvanCell [RLT]		
Other isotopes Ra-223 · Ra-224 · Ho-166 Re-186/188 · Sm-153 Cu-67 · At-211 · Tb-161	itm [RLT · Tb-161], Atonco [other · At-211], 正腾康 zentera [RLT · At-211], NUCLIDIUM [RLT · Cu-67], TREVARX BIOMEDICAL [RLT · At-211]	Telix [RLT/bone · Re-188, Sm-153], RAD [RIT · Tb-161], CLARITY [RLT · Cu-67]	cerenome [other · Re-186], onco invent [other · Ra-224]		BAYER [bone · Ra-223], TERUMO [SIRT · Ho-166], AlphaTAU [other · Ra-224], ONCOBETA [other · Re-188]

[RLT] targeted radioligand · [RIT] antibody radioimmunotherapy · [SIRT] microspheres · [NaI] radioiodine · [MIBG] iobenguane · [bone] bone-seeker · [other] non-targeted/local. Acquisitions rolled to parent/operating company

Beyond PSMA and SSTR, targets sort into crowded, contested, and open bets

FAP and CAIX are crowded; GPC3 and MC1R are the open alpha bets; HER2 and B7-H3 are re-entry plays

DIRECTIONAL

Representative Targets in Radiopharmaceutical Development

Crowded	Contested	Open	Re-entry
a validated leader sets the bar	*several credible, no clear winner*	*whitespace, few programs*	*lead discontinued, open again*

more crowded — more open, whitespace

FAP pan-tumor stroma	**GRPR** prostate, breast	**GPC3** HCC (liver)	**HER2** breast, gastric
Novartis — Lu-177 FAP-2286 — Ph1/2	**AAA / Novartis** — Lu-177 NeoB — Ph1/2	**RayzeBio / BMS** — Ac-225 RYZ801 — Ph1/2	**Precirix** — I-131 CAM-H2 — discontinued lead
CAIX clear-cell RCC	**DLL3** small-cell lung	**MC1R** melanoma	**B7-H3** neuroblastoma
Telix — Lu-177 TLX250 — Ph2	**Abdera** — Ac-225 ABD147 — Ph1	**Perspective** — Pb-212 VMT01 — Ph1/2	**Y-mAbs** — I-131 omburtamab — discontinued lead

Lead isotope: Lu-177 validated leads · Ac-225 / Pb-212 alpha bets · I-131 discontinued lead

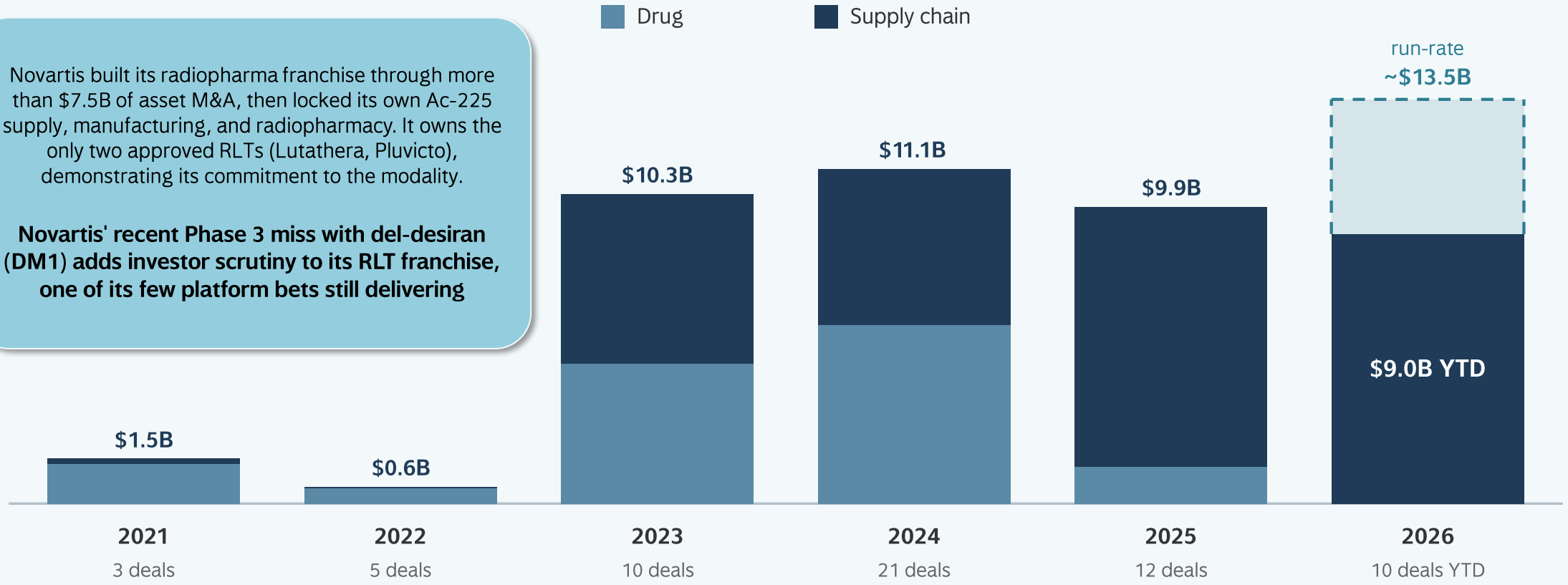
Confirmed therapeutic-only assets per target. Diagnostic tracers excluded.

Deal value is on pace for a record year, increasingly for the RLT supply chain

Disclosed value by year by drug vs supply-chain deals, with 2026 on pace to set a new total benchmark

Novartis built its radiopharma franchise through more than $7.5B of asset M&A, then locked its own Ac-225 supply, manufacturing, and radiopharmacy. It owns the only two approved RLTs (Lutathera, Pluvicto), demonstrating its commitment to the modality.

Novartis' recent Phase 3 miss with del-desiran (DM1) adds investor scrutiny to its RLT franchise, one of its few platform bets still delivering



~92% of deals are intra-Western (US, EU, Canada); cross-border radiopharma dealmaking is minimal, so the supply chain stays domestic

Deals refer to M&A, licensing/collaboration, minority financings, and long-term supply agreements

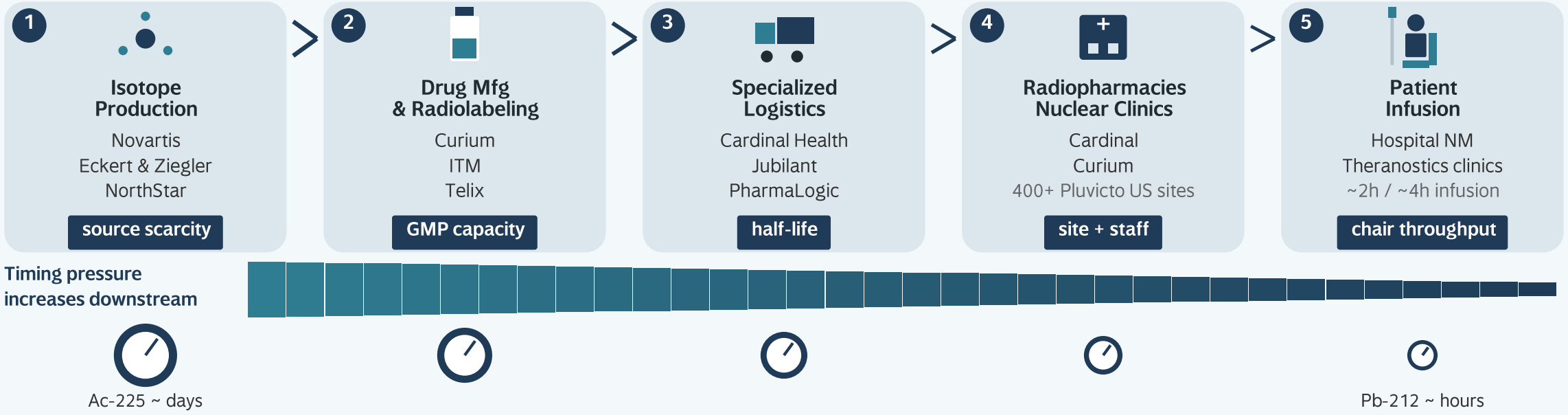
Disclosed deal value by year (radiopharma consolidation deal set, 2016-2026); 2026 through Aug, run-rate annualized.

RLT delivery is a multi-stage process with timing pressure as the primary constraint

Isotope supply to patient infusion, each stage time-boxed by half-life and its own limit

The RLT supply chain

representative players, not exhaustive



- The complex radiopharmaceutical supply chain is compounded by timing pressure: every stage runs on a radioactive clock, with the drug decaying (e.g., Ac-225 lasts days, Pb-212 only hours)
- The bottleneck has moved to delivery, primarily too few treatment slots and trained staff, which is why buyers have moved to own the process end-to-end

Representative players by stage, not exhaustive.

Buyers are consolidating every link of the radiopharma chain

Pharma buys assets, specialists build the integrated stack, private equity buys the infrastructure

Representative deals across buyer profiles

Large Pharma

Novartis
-> AAA, Endocyte, Mariana

BMS
-> RayzeBio

Eli Lilly
-> POINT, Aktis

Bayer
-> NorthStar, IONETIX

Radiopharma Specialists

Telix
-> ARTMS, ImaginAb, RLS

Lantheus
-> Evergreen, Progenics

Curium
-> Monrol, Nucleis

Private Equity

CapVest
-> Curium, Lantheus

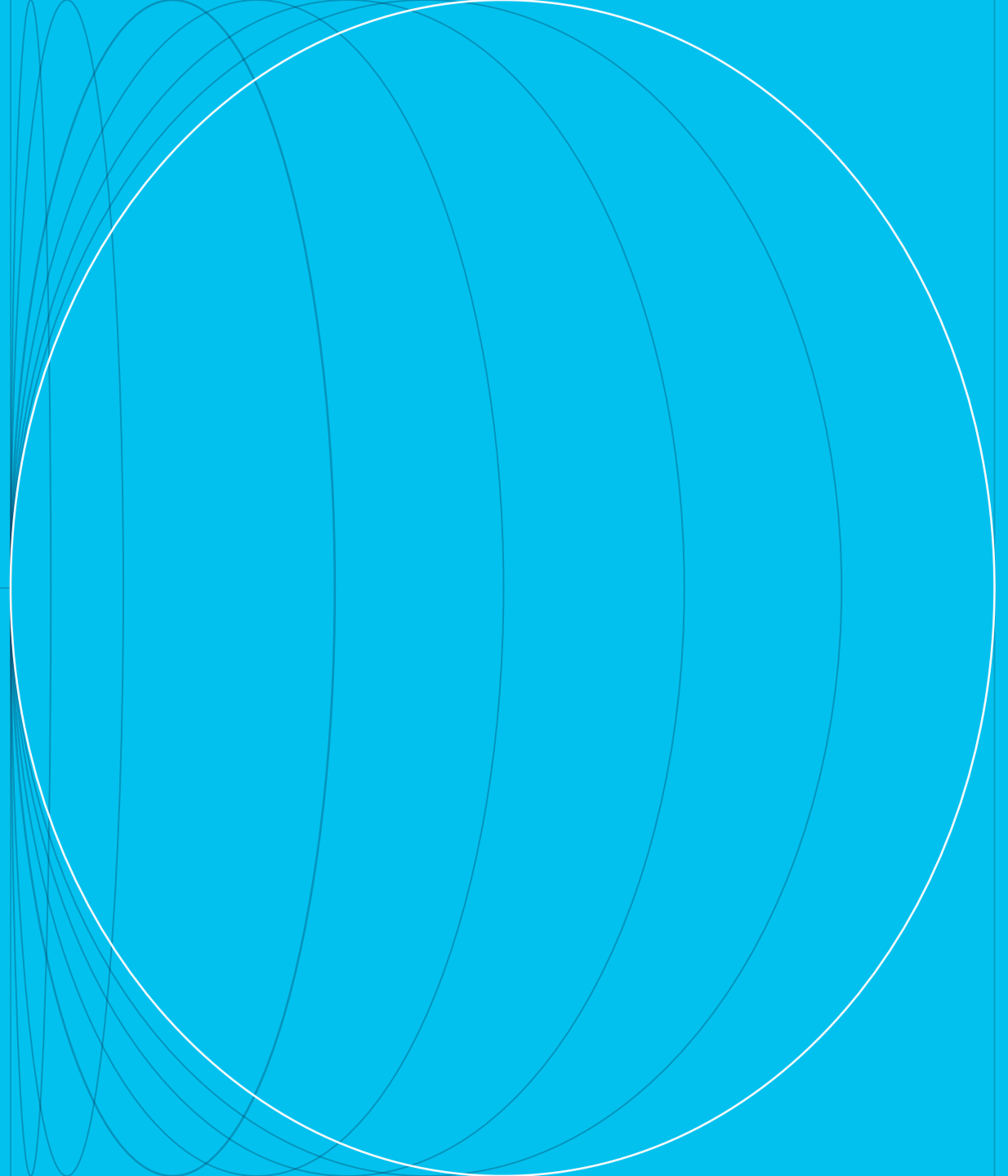
Nordic Capital
-> BWXT, Kinectrics

OrbiMed
-> SpectronRx

Perceptive
-> RLS (GE sites)

Representative radiopharma supply-chain deals, 2016-2026 (not exhaustive); classified by acquirer type.

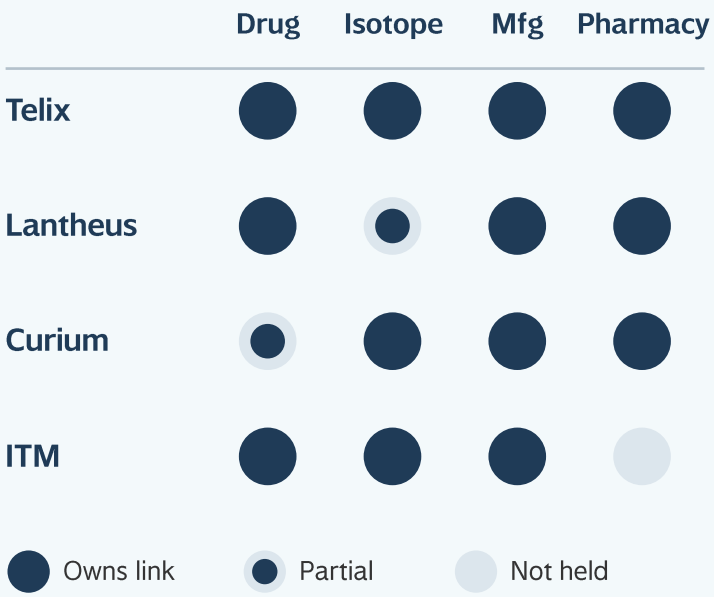
Section 2: Sleuth Perspectives



Supply-chain capabilities support both growth and acquisitions in radiopharma

Specialists have built integrated operations, while pharma has acquired both pipelines and manufacturing

Supply-chain capabilities at established specialists



Selected pharma acquisitions

RayzeBio -> BMS Ac-225 · 2023/24	$4.1B
Fusion -> AstraZeneca Ac-225 · 2024	~$2.4B
POINT -> Eli Lilly Lu-177 · 2023	$1.4B
AAA -> Novartis Lu-177 · 2017	$3.9B
Endocyte -> Novartis Lu-177 · 2018	$2.1B
Mariana -> Novartis preclinical · 2024	$1.75B

Novartis has become a leader in global radiopharmacy by buying both the developers (AAA, Endocyte, Mariana) and the supply chain (Niowave Ac-225, Indianapolis mfg, AAA radiopharmacy).

- Pharma acquisitions can bring manufacturing capabilities alongside drug pipelines. POINT and RayzeBio each brought manufacturing infrastructure into their buyers' RLT businesses.
- Among established players, the developers that stayed independent (Lantheus, Curium, Telix, ITM) also own isotope supply, manufacturing or radiopharmacy
- **Sleuth Insight:** Securing isotope supply & manufacturing access early can support standalone growth, but also be a catalyst for a takeout / provide partnering optionality

Selected radiopharma control and M&A deals, 2017-2026 (representative). Deal values as disclosed.

Radioligands are moving to alpha emitters, but Ac-225 supply is a bottleneck

Alpha supply is increasingly scarce, with major players locking up current Ac-225 capacity over the past year

Radioligands are shifting from beta to alpha emitters...

But the supply of the leading alpha emitter (Ac-225) is scarce...

Ac-225 supply is scarce today as legacy actinium output supports only a few hundred patients a year

And key players have already moved to control the supply

AstraZeneca + Niowave
10-year Ac-225 offtake · Dec 2025

Novartis + Niowave
Global Ac-225 supply · Feb 2026

TerraPower
$450M Ac-225 plant · Mar 2026

Nordic Capital + BWXT
Isotope platform, $800M · Aug 2026

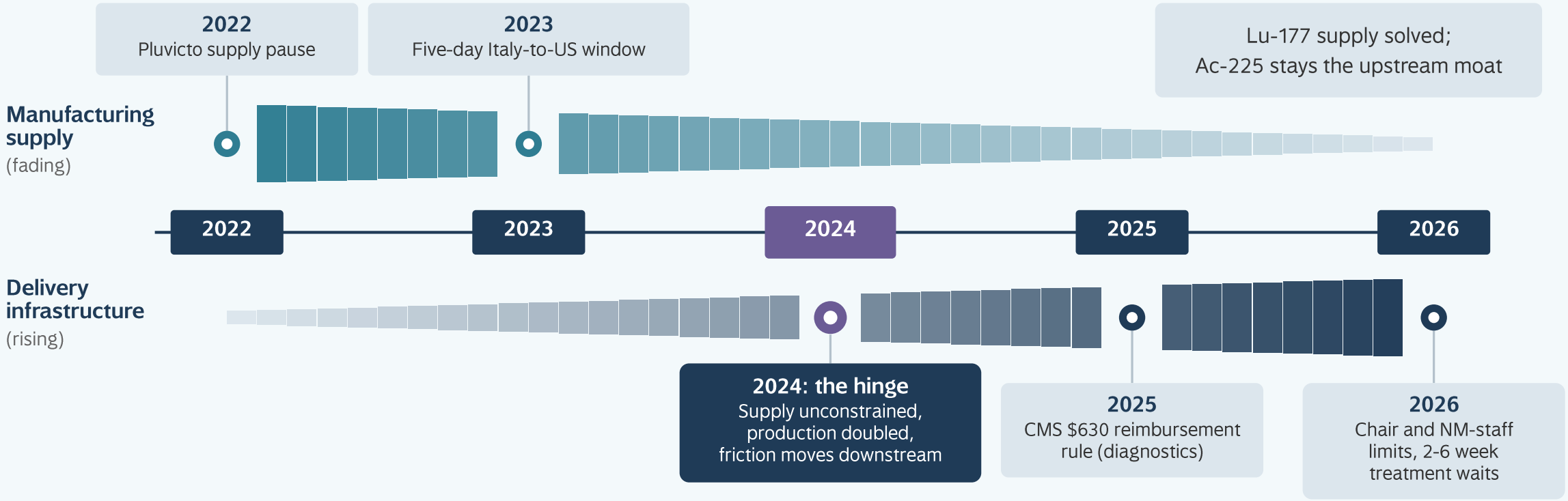
- While radioligand therapy is shifting from beta (Lu-177) toward alpha emitters, alpha superiority is not yet clinically proven
- Ac-225 deposits far more energy over a shorter range than Lu-177, sparing nearby tissue; its multi-alpha cascade and ~10-day half-life make it the practical frontier.
- **Sleuth Insight:** New capacity should ease scarcity by around 2027, but current RLT developers seeking to use Ac-225 must move now or risk being locked out of supply

Representative Ac-225 supply and capacity deals, Dec 2025 to Aug 2026.

RLT has clinical and manufacturing proof, but delivery is now the bottleneck

Constraints have moved from manufacturing supply in 2022-23 to site and staff capacity today

How the binding constraint moved from supply to delivery, 2022 to 2026



Sleuth Insight: The near-term ceiling on radioligand therapy is delivery infrastructure. Watch how the availability of nuclear-medicine chairs, limited radiopharmacy staffing, and difficulties in drug reimbursement dampen the growth rate, as no molecule can fix a shortage of treatment slots.

US site counts as of 2026.

China originates the pipeline, but its supply chain edge will not cross borders

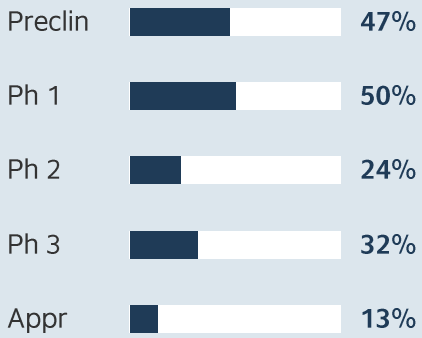
Western pharma can in-license or acquire the molecule IP, but the radioactive supply chain must remain local

China originates the pipeline

~45%

of active programs (including diagnostics) are China-origin

China share by phase



Largest origin, concentrated early

But the deal wave has not followed

Unlike ADCs and other classes where China is now a major deal source, radiopharma has seen almost none.

China's supply-chain edge stays domestic even when the asset is in-licensed or sold. Only the molecule travels.

Full-Life -> SK Bio
Korea, 2024

Zonsen -> Novartis
2026

- Western pharma is expected to increasingly in-license and acquire China-origin radiopharma molecules/IP as they become clinically validated.
- However, the supply chain's rapid decay timelines mean manufacturing must remain local or regional

Sleuth Insight: The value of China's pipeline accrues to whoever in the West owns the RLT infrastructure. A company serious about RLT should build or buy the isotopes and manufacturing now. Once that chain is running, in-licensed assets, China's included, can drop much more easily onto it.

Full-Life to SK Biopharmaceuticals (2024); Novartis-Zonsen PepLib (2026).

Sleuth predictions

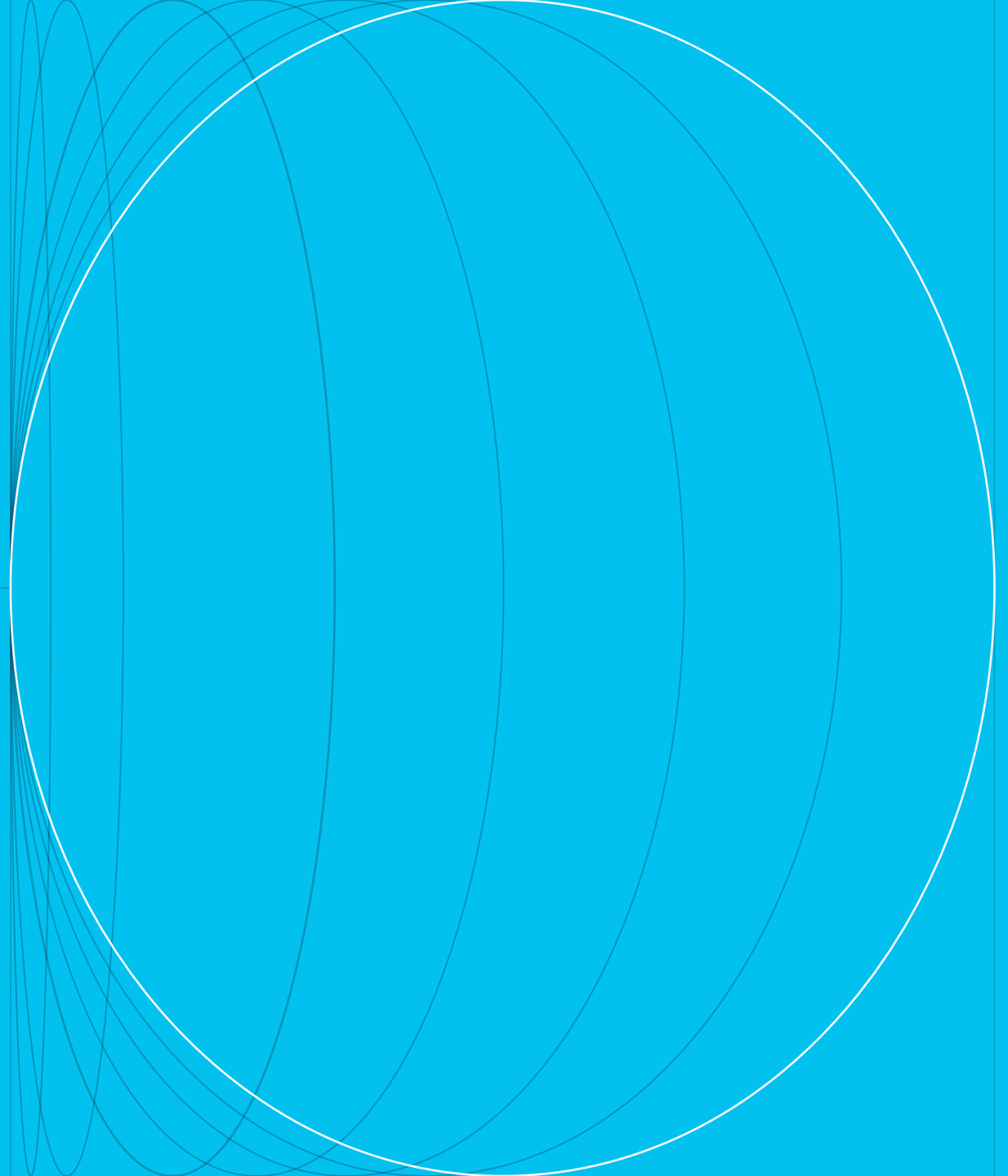
Our read when we look beyond the data

1. **Supply-chain control decides who stays independent, alpha included:** the independent RLT leaders of 2028 pair a differentiated asset with locked isotope supply and manufacturing; asset-only developers still win, but as partners or acquisition targets (as RayzeBio did at $4.1B), not as independents. Leading Ac-225/Pb-212 programs will be those that secured supply early, with actinium capacity watched for commercial scale by 2027.

2. **Western in-licensing of Chinese-origin RLT assets is coming:** China now originates a large share of radioligand innovation, yet almost none has been licensed to the West; we expect clear step-up in Western in-licensing of Chinese-origin RLT assets by 2027.

3. **The next franchise is still unclaimed:** The first non-PSMA/SSTR franchise winner emerges from FAP or the off-crowd DLL3, GRPR, and GPC3 bets, not the long Phase-1 tail; the early Phase-2 readouts settle it.

How Sleuth can help



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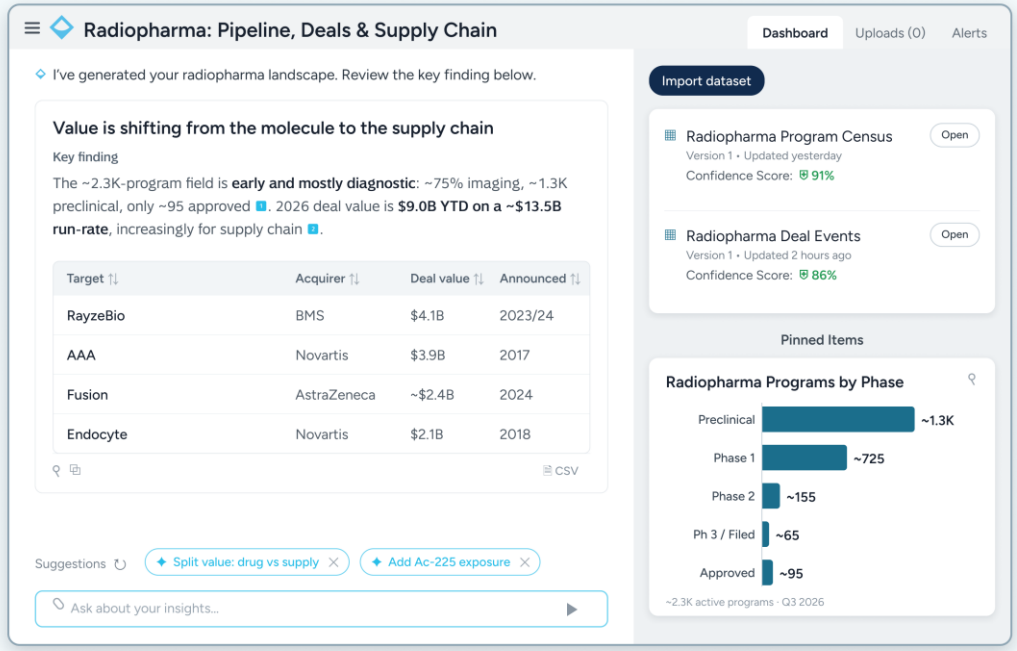
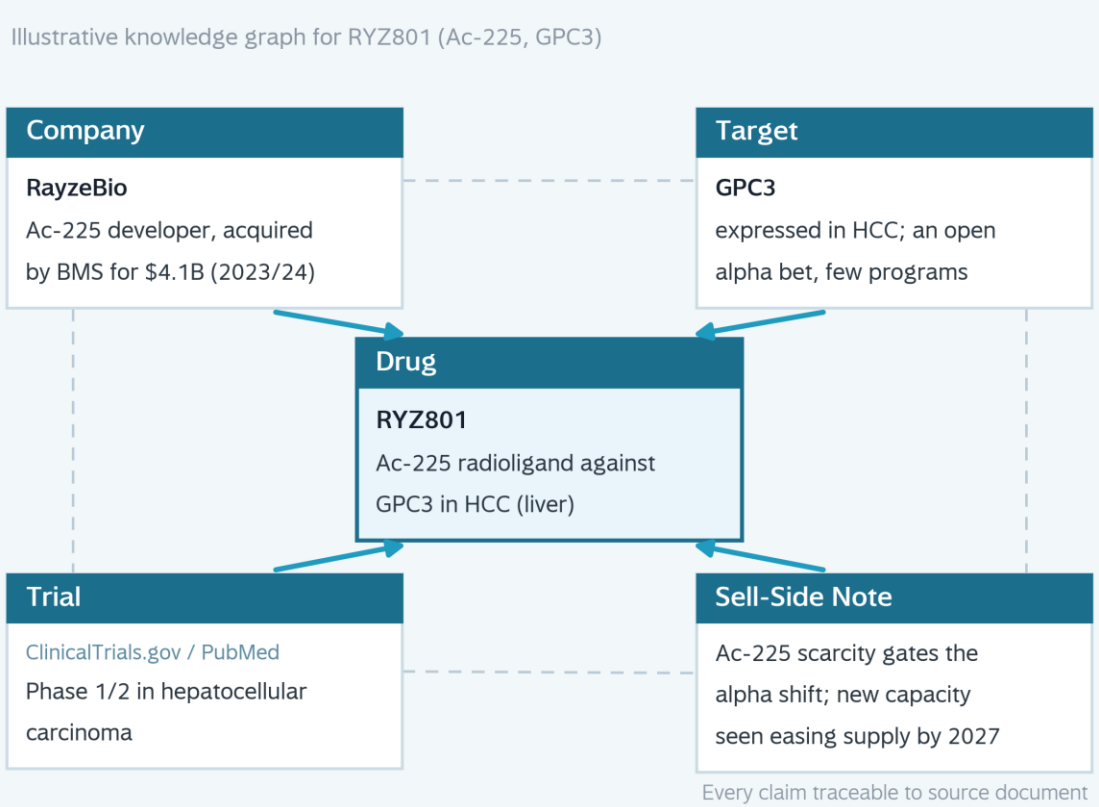
Main Takeaway: Radiopharma is large but early, and value is shifting from the molecule to the supply chain. Ac-225 scarcity and delivery capacity now set the ceiling.



Intelligence you can stand behind

Bring Sleuth your questions, and pre-connected intelligence surfaces automatically. Our knowledge graph connects data across the landscape, with full traceability.



Case study: Epana Bio indication prioritization

What happens when you evaluate 167 indications with the same effort as six? Read the full case here.

Stakes: Epana Bio needed to make a high-stakes decision on which indications to pursue first for their targeted cell depletion therapeutics.

Challenge: Standard evaluation is often limited by bandwidth, forcing teams to choose from just a few familiar diseases.

Approach: Epana ran a comprehensive evaluation of 167 indications, using an iterative framework to challenge scores and pressure-test every assumption.

Outcome: Leadership built the conviction needed to select lead indications and raise capital with an investor-ready narrative.

167	Indications evaluated
25	Evaluated with a tailored Epana focus that most processes never reach
4	Shortlisted for deep commercial diligence
1	Optimized basket

"All the strategy that used to be proprietary to pharma — the 'game within the game' that actually drives strategic decisions — Sleuth made that accessible to a nine-person biotech. **I think it's the most disruptive, amazing thing for small organizations like ours.** A massive, massive unlock."

Danny Wells, PhD
CEO, Epana Bio