

The BioCentury-BayHelix

EAST-WEST BIOPHARMA SUMMIT

Organized by BioCentury and BayHelix in collaboration with McKinsey & Company

BioCentury's 2nd East-West Scene Setter: The Global Innovation Marketplace

**Innovating on Innovation: How Asia's strengths
are driving deal flow East to West**

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Contents

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- ❑ Introduction
 - ❑ Increasing deal flow from East to West Slide 3
 - ❑ Key questions posed in analysis Slide 4
 - ❑ Summary of major findings Slide 5
 - ❑ Methodology Slide 6
- ❑ Results
 - ❑ MNCs vs biotech licensees Slides 7-9
 - ❑ Asset vs technology Slide 10
 - ❑ Phase of development Slides 11-12
 - ❑ Modalities Slides 13-15
 - ❑ First in class Slides 16-17
 - ❑ Therapeutic area Slide 18
 - ❑ Territorial rights Slide 19
 - ❑ Licensor location Slide 20
 - ❑ MNC leaderboard Slide 21



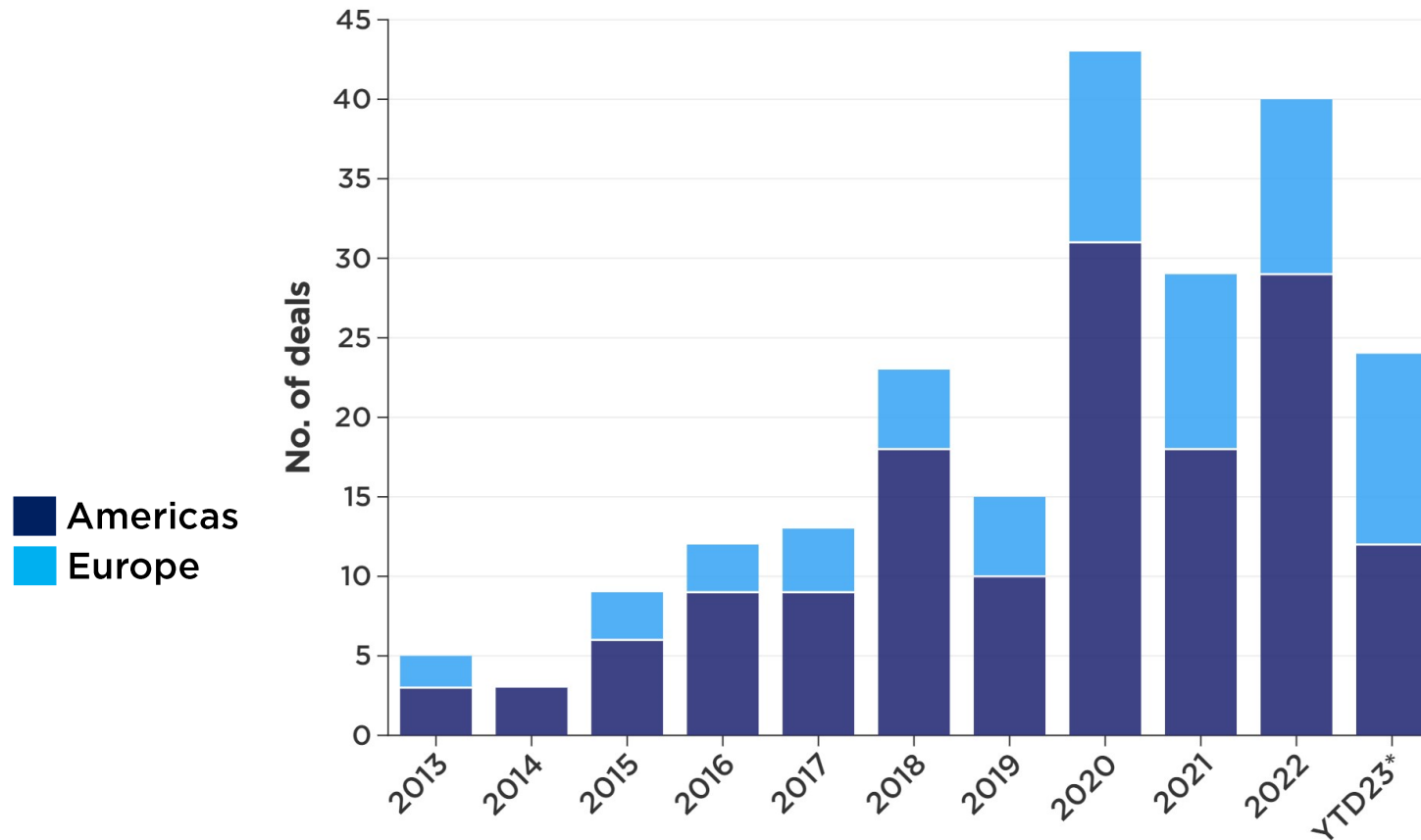
The backdrop: Increasing deal flow from E-W

An almost 10-fold rise over the past decade

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China out-licensing deals to the West: Therapeutic and platform programs



*Deals through July 15, 2023.
Includes only China-based licensors, not other Asia countries.
Includes deals with undisclosed financials



BioCentury's analysis

Key questions and key conclusion

- ❑ Over the past four years, BioCentury has identified increasing numbers of deals between innovative Asia biotechs and Western biotechs or MNCs. The deal flow is a departure from the long-standing trend of partnering with China-based companies for access to the China and other Asia markets for commercial-stage drugs
- ❑ BioCentury's 2023 East-West Scene Setter analysis asks what's behind the uptick in deal flow, and examines the drivers of the partnerships that are reshaping the geography of innovation. Looking at deals since the start of 2022, it asks:
 - How much of the deal flow is for assets vs technologies?
 - In what types of modalities and disease areas is Asia creating its most competitive products?
 - How far in development are the assets, and how many have first-in-class potential?
 - What kind of territorial rights are biotechs selling and buying?
 - And across all of this, how much are pharmas and biotechs willing to pay?

The deal flow indicates a growing recognition of Asia as a source of innovation. The strength is in “innovation on innovation” – for example, the ability to take a next-generation modality and iterate to a better version via creative modifications. ADCs and bispecifics are a major feature of the deals sought by Western partners. While many assets have first-in-class potential, the majority don't, reflecting the potential for best in class or other value-drivers among Asia's innovators.

Summary: Innovating on Innovation

What's behind the drive for deals with Asia biotechs

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- ❑ Dealmaking in Asia is no longer the purview of MNCs. As MNCs expand their BD to innovative assets and technologies, Western biotechs are joining the hunt. The deal flow underscores the innovation potential of Asia biotechs, with the majority centered on discovery technologies and early-stage assets
- ❑ Asia's greatest draw is in next-generation modalities and technologies, which drive the highest deal values. First-in-class assets are a part of the picture, but other innovations expand the therapeutic window, deploy known mechanisms in new indications, advance molecule design and modify PK
- ❑ MNCs are specifically interested in early-stage assets and technologies, which form all but one of the deals. Biotechs also skew early, but are more likely to license late-stage programs.
- ❑ Although cancer still dominates by deal volume, neurology brings comparable deal value, and partners are evenly split between MNCs and biotechs in both disease areas

MNC deals	18
Biotech deals	18

Technology deals	8
Asset deals	27

MNC deals ≤ Phase I	17
Biotech deals ≤ Phase I	14

Next-gen median*	\$1.2B
Traditional median*	\$425M

FIC median*	\$600M
Beyond FIC median*	\$693M

Cancer median*	\$1.05B
Neurology median*	\$1.02B



Methodology

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- ❑ BioCentury identified 36 deals involving Western biotechs or MNCs that partnered with Asia-based biotechs for innovative assets or technologies, since the beginning of last year
- ❑ The analysis includes collaborations and licensing deals:
 - To discover new products, or license one or more investigational products
 - With disclosed financial terms
 - With licensor headquartered in Asia
 - With licensee headquartered in the U.S. or Europe
 - Recorded in BioCentury's BCIQ database from January 2022 to August 2023
- ❑ The analysis excludes:
 - Licensing of marketed products
 - Out-licensing by multinational companies based in Asia (e.g., Takeda)
 - Deals with undisclosed financial terms, or deals where only the upfront payment was disclosed
 - Extensions, amendments and option exercises to deals announced before January 2022

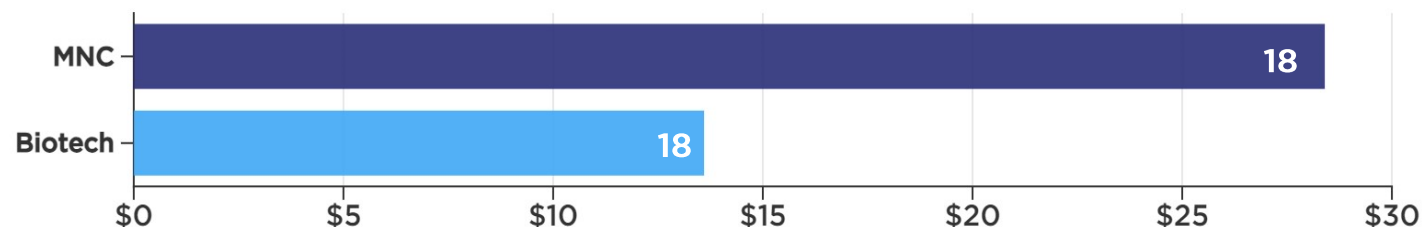


\$42B in 20 months

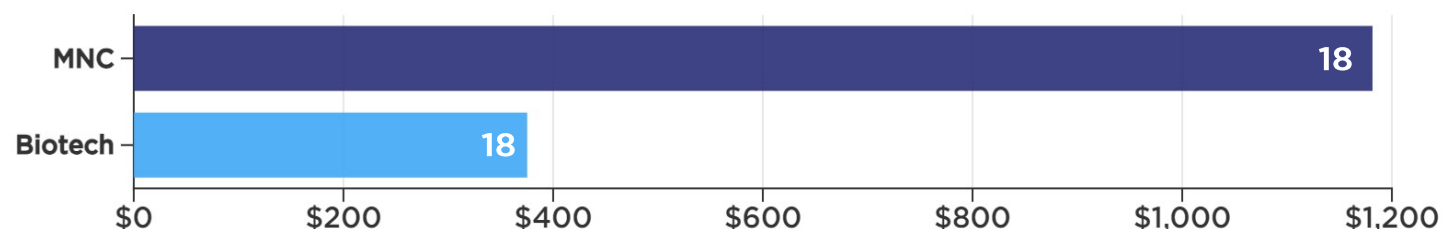
Disclosed deals with Asia biotechs could bring up to \$42B to the sector

- ❑ One surprise is that deal volumes are evenly split among MNCs and biotechs, with 18 each
- ❑ Less surprising is that the bigger dollars come from the pharmas, which account for \$28B (2/3) of the total
- ❑ Median value of MNC deals (\$1.18B) is more than 3X higher than for biotech deals (\$375M)
- ❑ Still, with up to \$14B committed by Western biotechs, it's clear that Asia innovation has a growing global footprint

Total cumulative deal value (\$B)

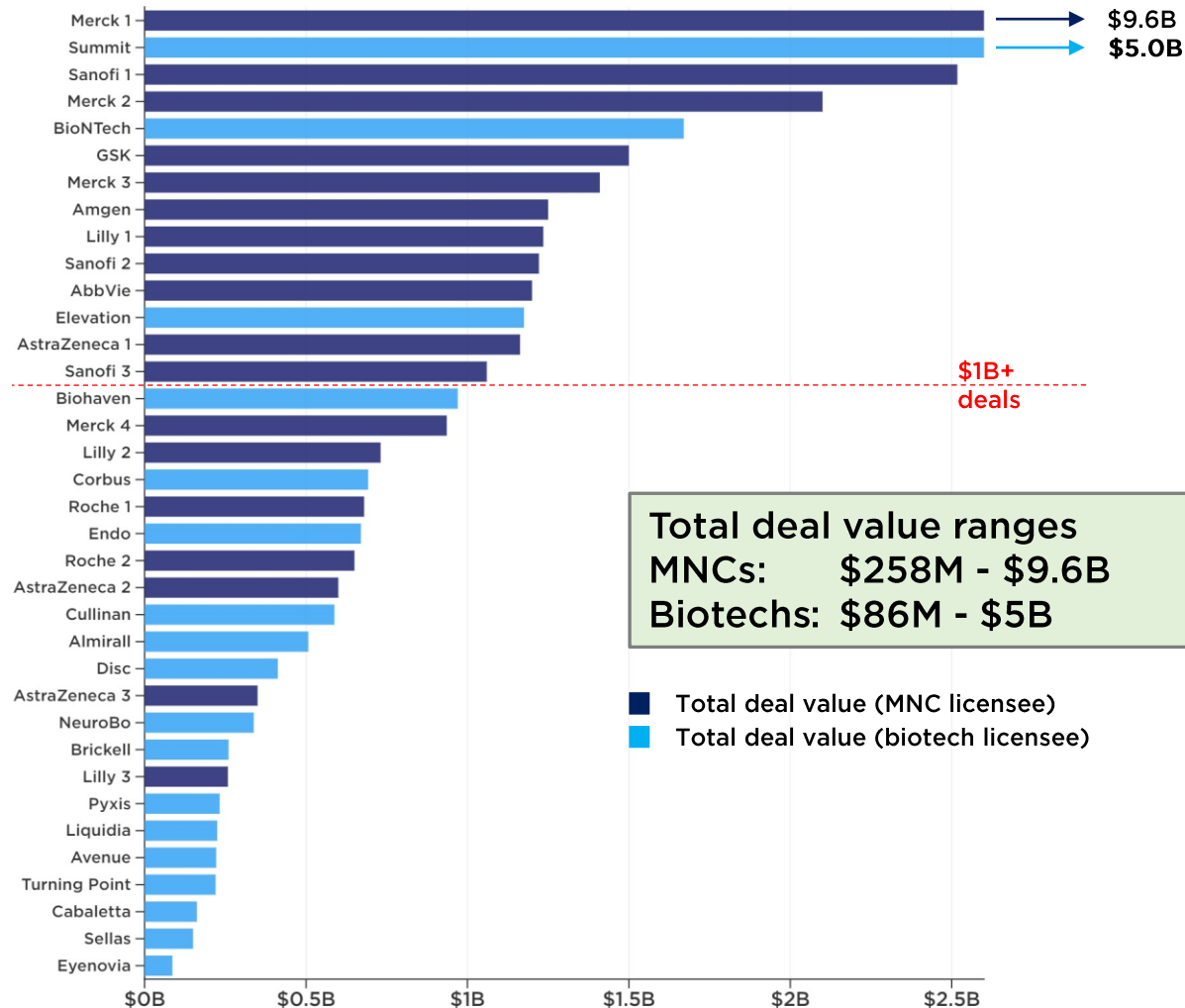


Median deal value (\$M)



More than one third are \$1B+ deals

Despite MNC weight in top deals, three biotechs are in that club



☐ MNCs account for 11 of the 14 \$1B+ deals

- More likely to be multi-asset deals
- All technology deals involve MNCs
- Almost all include WW licenses, meaning more territories to pay for

☐ Biotechs are licensees in 15 of the 22 deals under \$1B

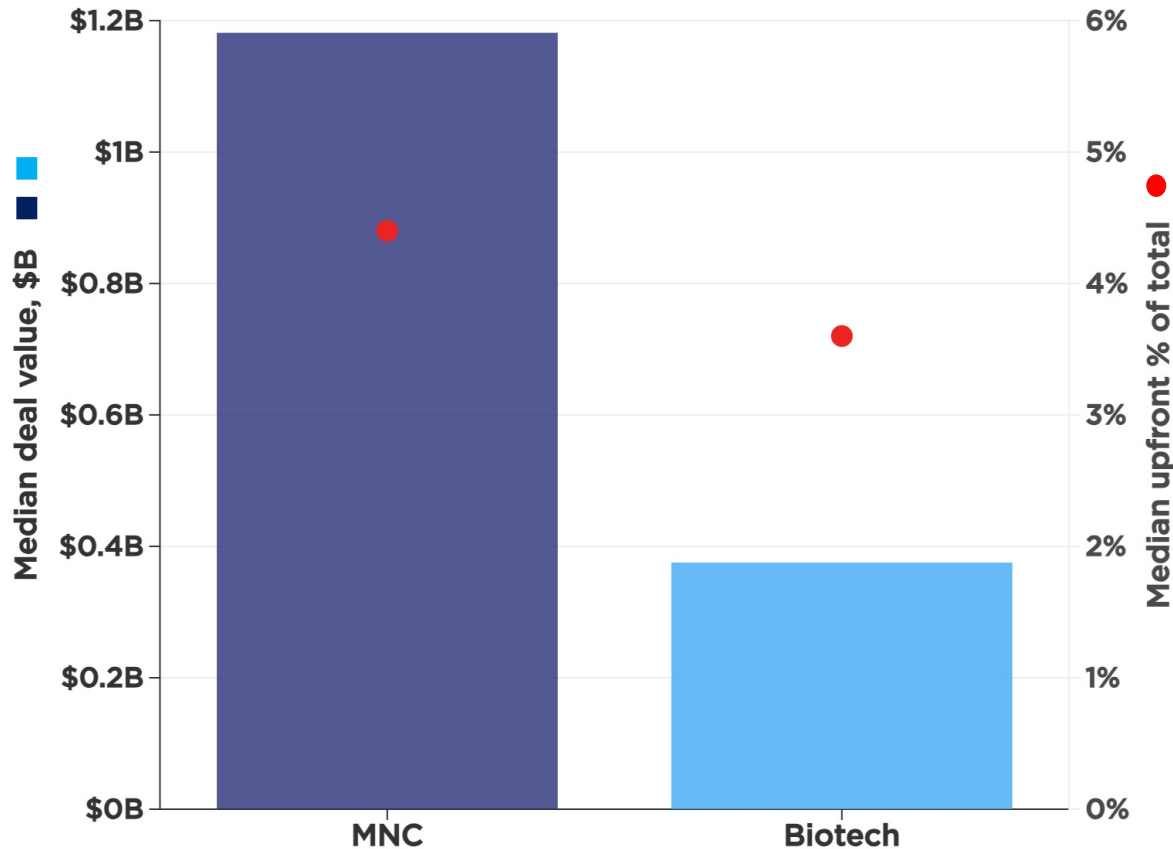
- Most involve single assets
- More likely to be clinical, often later stage, meaning fewer milestone events
- More likely to have fewer territories in deal



But MNCs aren't more generous up front

Deals with MNCs and biotechs are similarly, and heavily, backloaded

Median deal value and percent up front



- Though total deal values give Asia biotechs incentives to partner with MNCs, Western biotechs are offering similar upfronts

Upfront ranges as a percentage of total deal value

MNCs: 0.7% -10.3%

Biotechs: 0.8% -11.4%

Range of upfront amounts

MNCs: \$17.5M - \$275M

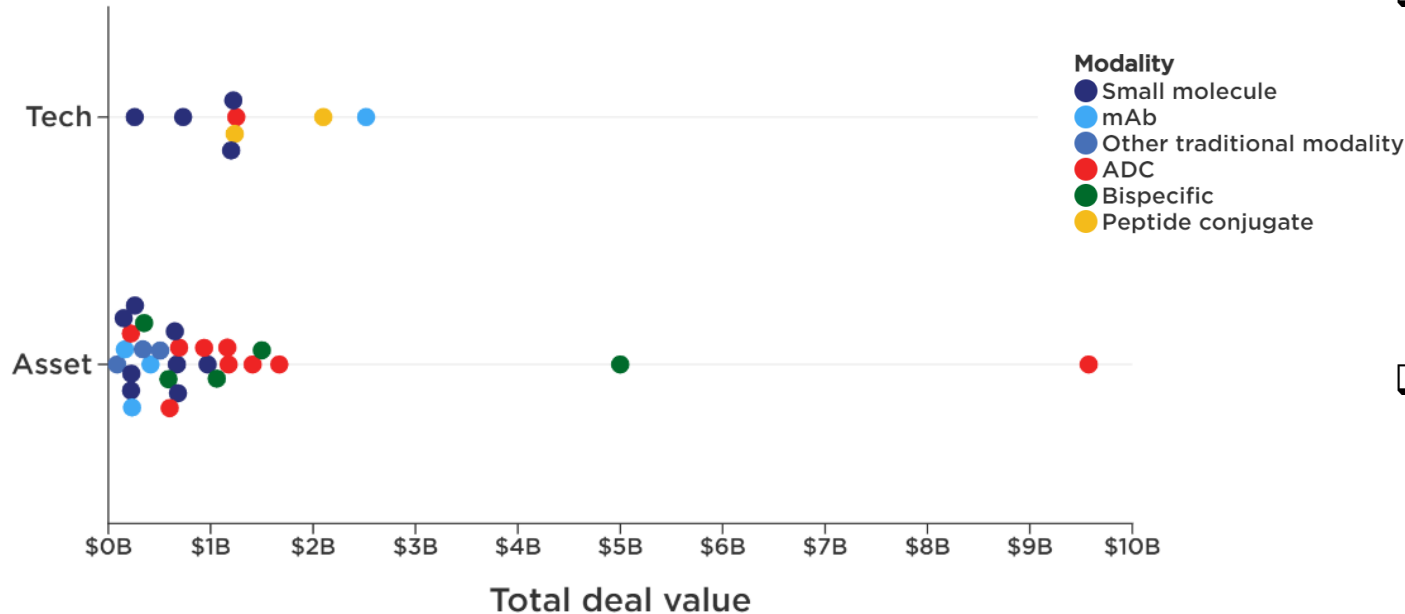
Biotechs: \$2M - \$500M



Asia's tech innovation draws top dollars

It's not only assets that are driving deals; 25% are technology-based

Total deal value by modality and deal-type



TECH (n=8)
Median total = \$1.2B
Median up front = \$29.3M*

ASSET (n=27)
Median total = \$625M
Median up front = \$25M

- ❑ Median tech deal value is twice that of the asset deals, at \$1.2B vs \$625M
 - Near-term commitment is less differentiated; upfront payments from disclosed tech deals and asset deals are comparable, at \$29M vs. \$25M
 - Most of the tech deals are research or discovery alliances to find multiple new assets
- ❑ For both technology and asset deals, the highest value is being driven mostly by new modalities, specifically ADCs and bispecifics
 - More than half of the ADC, bispecific asset deals have \$1B+ values
- ❑ Small molecules and mAbs represent under half the asset deals

*Only 4 of the tech deals disclose upfront payments

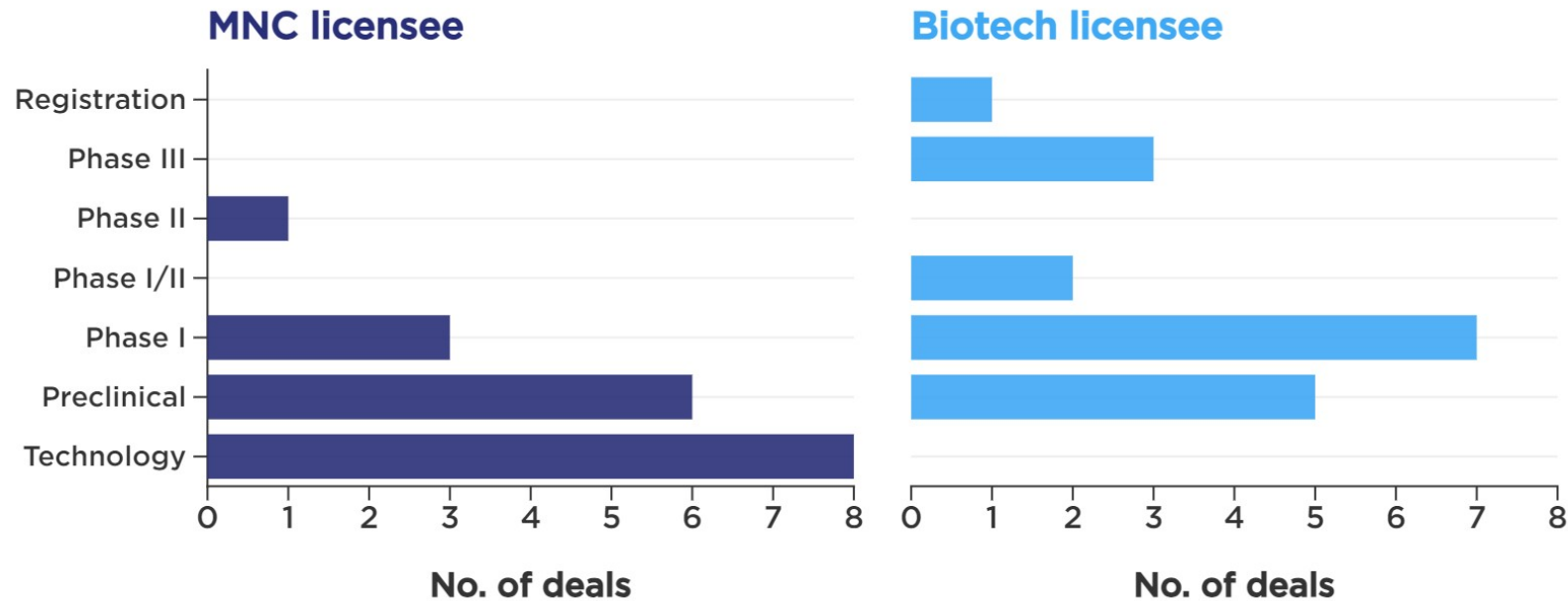
"Other traditional modality" includes fusion proteins, nanoparticles and deals with multiple modalities 10



Early-stage deals drive the hunt in Asia

80% of the deals are Phase I or earlier

Deal numbers by phase and licensee



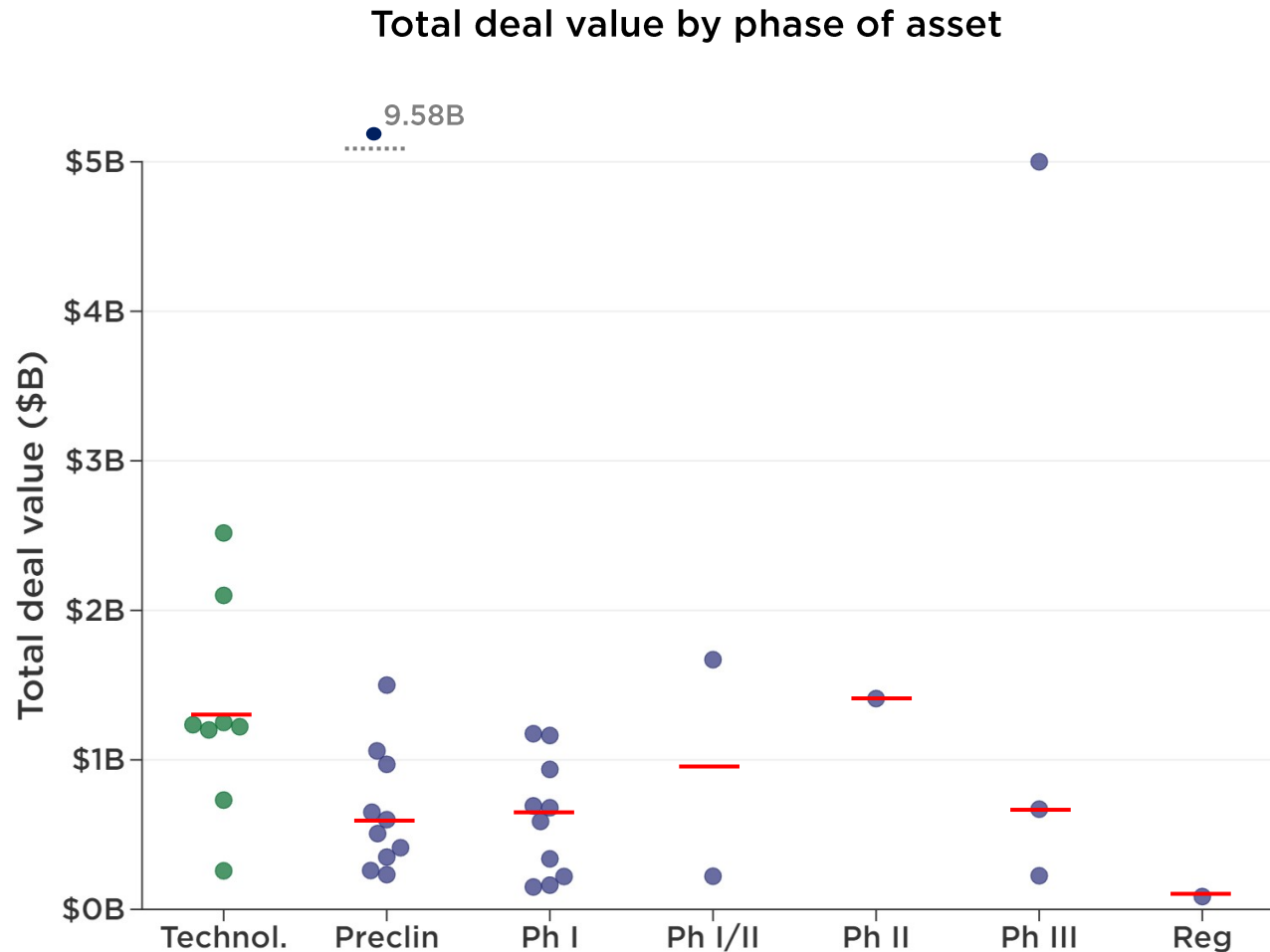
☐ Innovation potential and China’s antibody expertise is driving the early-stage deals:

- More than half the Ph I and Ph I/II deals are for first-in-class assets
- 80% of the deals that aren’t FIC assets are for antibody modalities



POC doesn't pay that much more

Apart from one Phase II deal, values don't segregate by POC



- ❑ Median (or average) deal values are roughly the same across preclin to Ph III, suggesting POC data aren't driving up valuations
 - While a single Ph III deal is one of the highest at \$5B, two others are in the sub-billion range
- ❑ Note: Upfront percentages don't vary much by phase either, with medians ranging from 2% to 6% of total deal value (not shown)

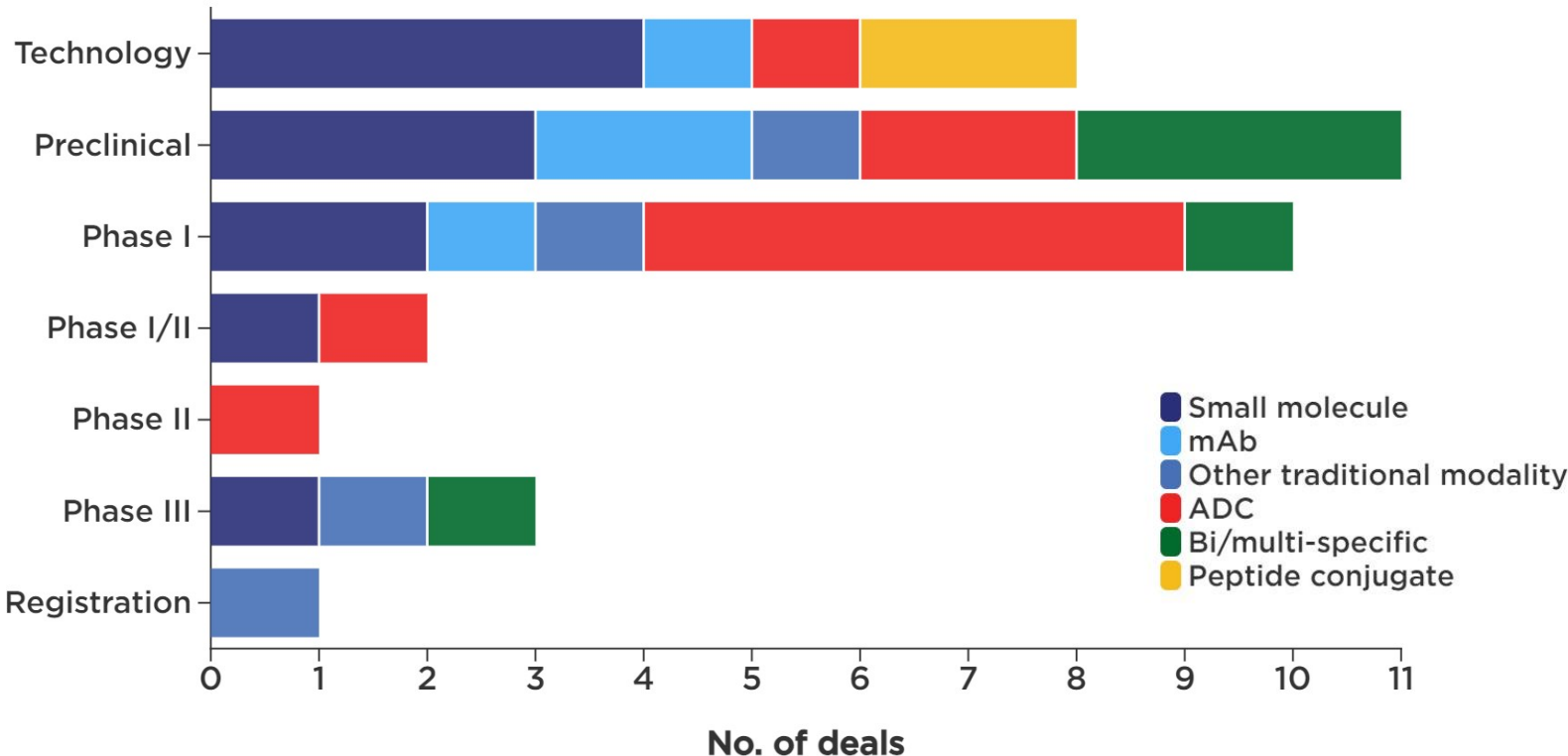
— Median



Early-stage deals lean to next-gen modalities

New modalities are more than half of the clinical deals

Deal numbers by phase and modality



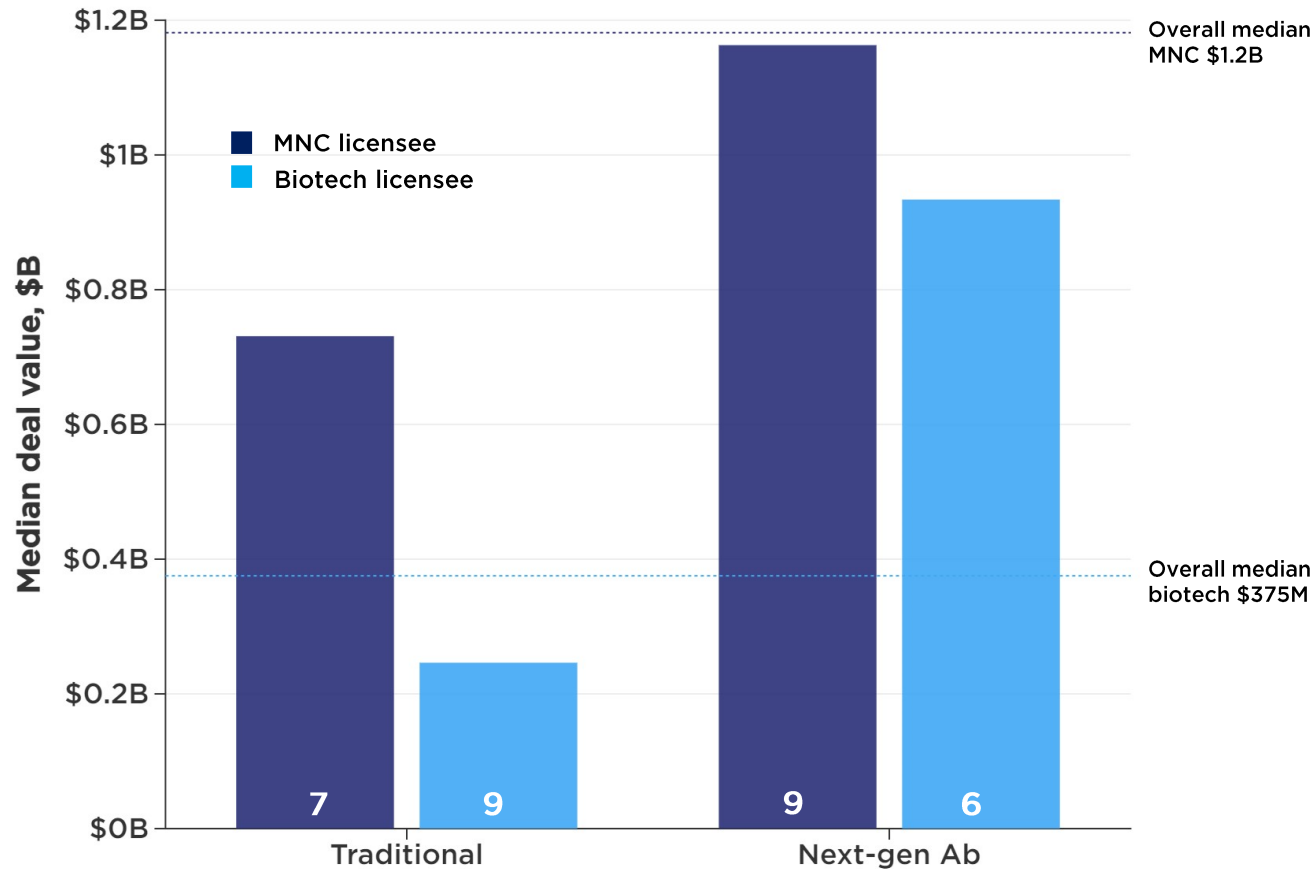
- ❑ For ADCs and bispecifics, the sweet spot is preclin to Ph I
 - 15 of the 18 ADC and bispecific deals are preclin-Ph I
- ❑ For technology deals, Asia companies are fairly evenly split between traditional (5) and new (3) modalities



Biotechs and MNCs compete for next-gen Abs

But traditional modalities are more highly valued by MNCs

Median deal values and modality by licensee



- ❑ Median deal values for next-gen Abs hover around \$1B for MNCs and biotechs
 - ❑ Traditional: Small molecules, mAbs
 - ❑ Next-gen Abs: ADCs, bispecifics
 - ❑ Not shown: Two peptide conjugate deals, both with MNCs and Peptidream, at \$1.2B and \$2.1B total deal value, which account for the level of the median

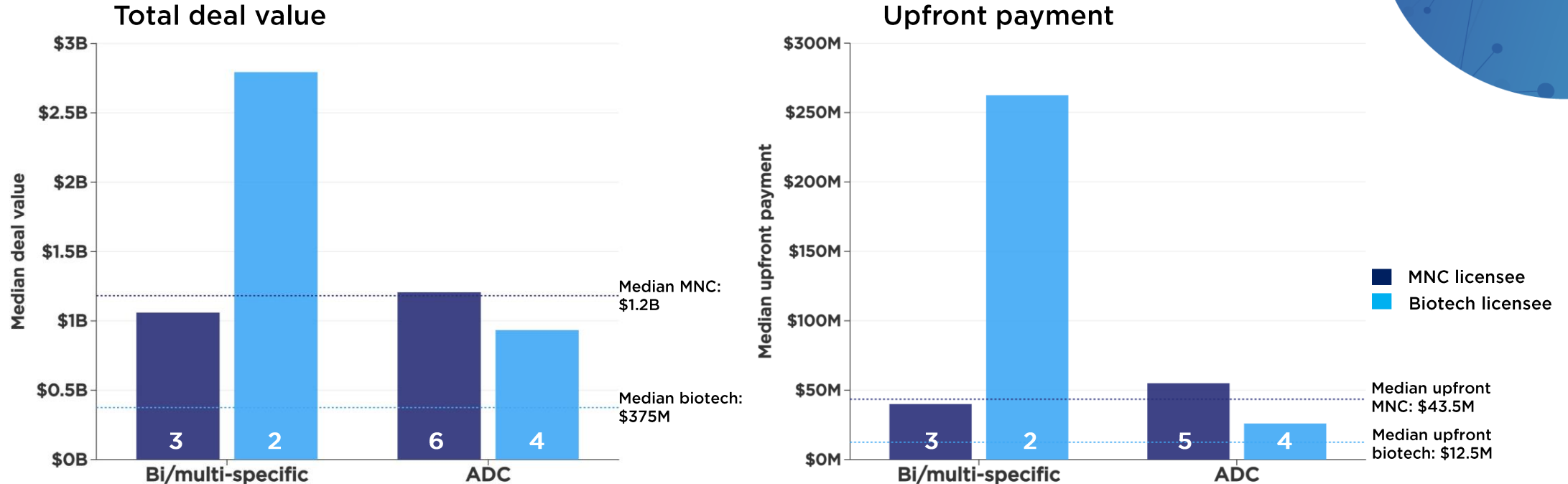
- ❑ But Asia companies with traditional mAbs are better off seeking MNC partners; median deal values are 3X higher



Biotechs will pay handsomely for the right asset

Although ADC deals win on volume, bispecifics match or beat on value

Median deal values and upfront payments for ADCs and bispecifics

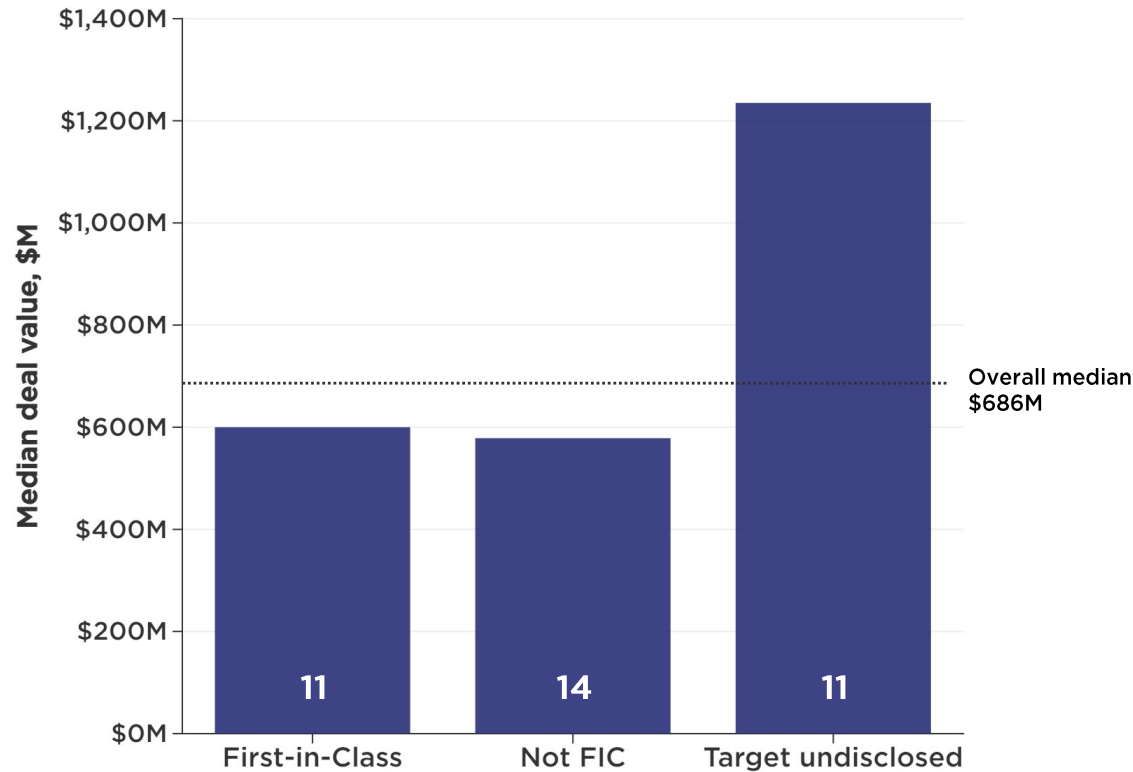


- ❑ The largest upfront payment in the dataset, \$500M, was paid by a biotech in a bispecific deal
 - Summit licensed a Phase III PD-1/VEGF bispecific from Akeso; upfront payment was 10% of total deal value
- ❑ For ADCs, MNCs and biotechs commit to similar total deal value, but upfront payments from MNCs are more than 2X higher, at \$55M vs \$26.5M

Deal values aren't driven by FIC potential

However: undisclosed targets may hide a different reality

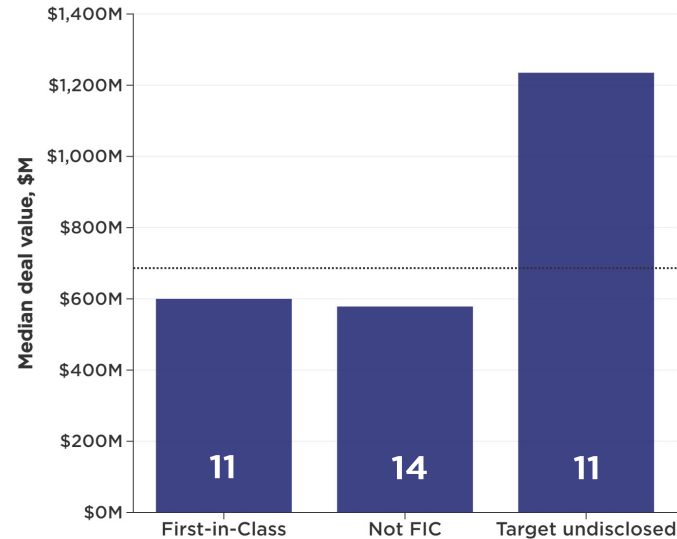
Median deal values by first-in-class potential



- ❑ Western dealmakers aren't exclusively focused on first-in-class assets → Deal volume and value are comparable between FIC and non-FIC* programs
 - ❑ FIC deals are evenly split between Western biotech licensees (6) and MNC licensees (5)
- ❑ Almost one third of deals have undisclosed targets, however, and the median deal value is more than twice that for disclosed targets
 - ❑ Only 3 of these deals are for next-gen modalities, all ADCs
 - ❑ Most (8/11) are technology rather than asset deals

Innovation beyond FIC targets

Asia companies find multiple ways to add value to therapeutic programs



→
**Innovation
value**

Not FIC

Chemistry:	1
Therapeutic index:	6
Indication:	4
PK:	3

Undisclosed target

Chemistry	5
Therapeutic index:	5
Indication:	1

- ❑ Where the innovation isn't around a first-in-class asset, it segregates into four principal categories:
 - ❑ **Molecule design:** Asia company's expertise lies in synthesis or creation of the therapeutic molecule
 - ❑ **Therapeutic index:** Asia company's technology enables increased efficacy and/or decreased toxicity
 - ❑ **Indication:** Technology enables a known target or mechanism to be deployed in a new indication
 - ❑ **PK:** Technology uses PK enhancement to improve dosing, compliance or optimize exposure of the therapy

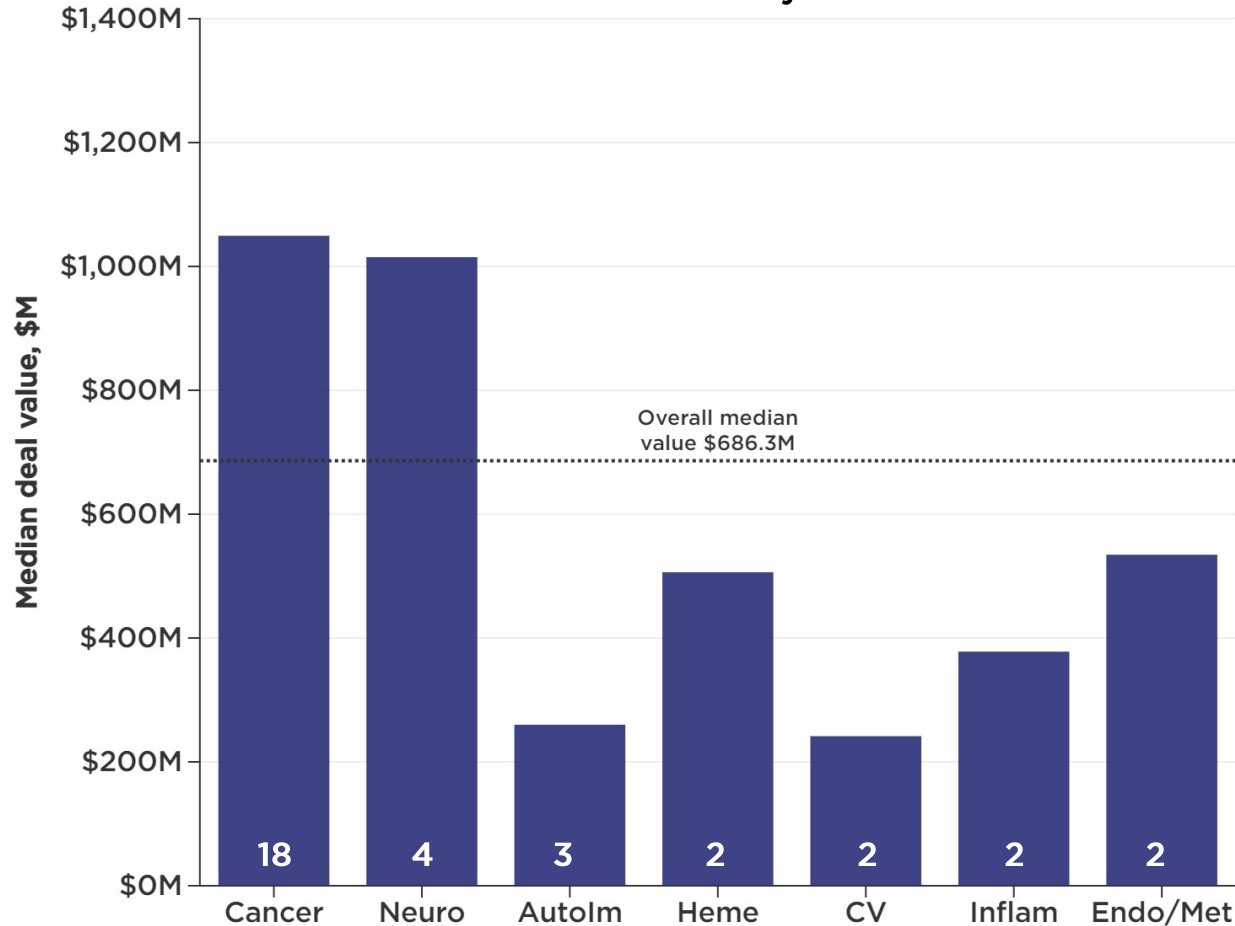
Asia innovators providing value beyond cancer

Though cancer dominates by volume, neuro matches on value

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Median deal value by disease area

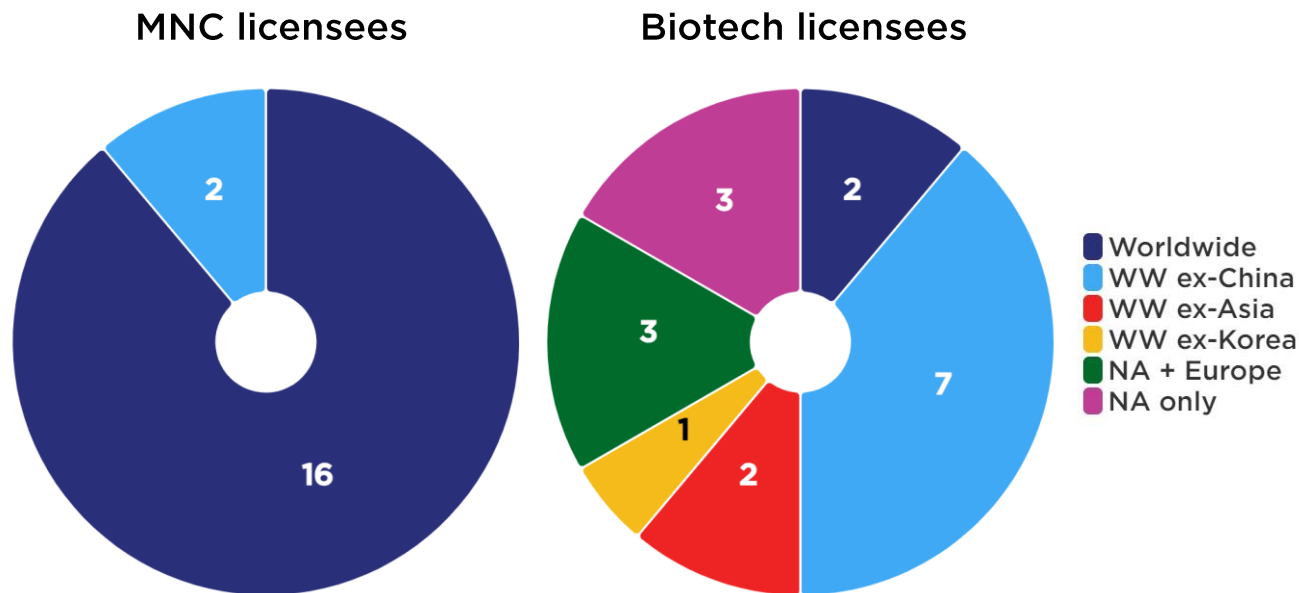


- ❑ Asia's heavy focus on cancer persists, accounting for more than half the deals, but neuro and autoimmunity – two areas high in global innovation – are also on the radar for licensees
- ❑ Neurology deal median values match those for cancer, and both are above the overall median
 - Neurology deals are evenly split between MNCs and biotechs (2 each), with 3 of the 4 deals close or above \$1B
 - Cancer deals are also split: 10 have MNC and 8 have biotech licensees
- ❑ Not shown, 3 deals with an undisclosed disease area focus, two at \$1.2B and one at \$2.1B



Western biotechs provide a path to sharing territorial rights

Territorial rights in the deals

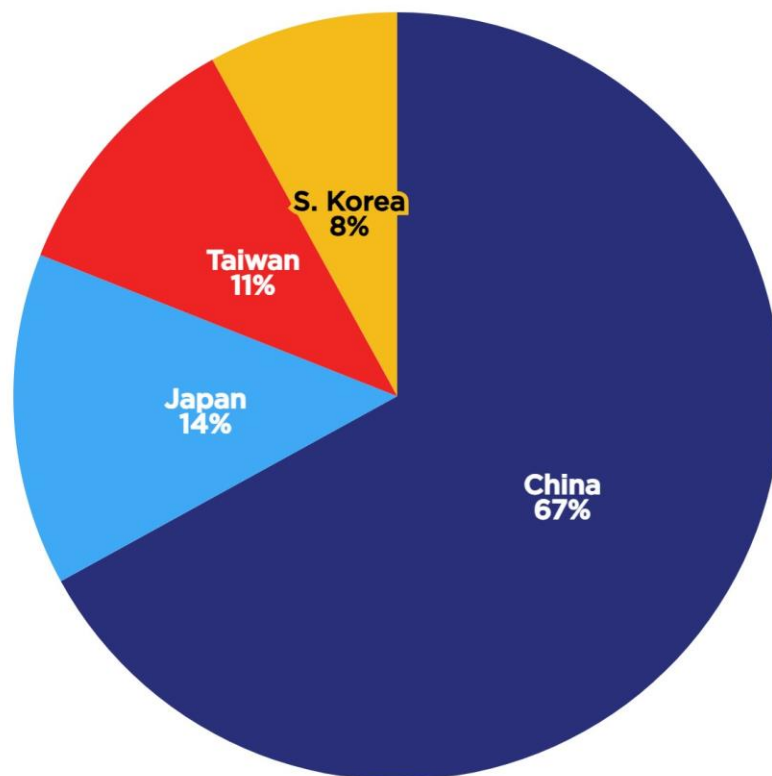


- ❑ While MNCs want worldwide rights, biotech licensees carve out territories, particularly in Asia
 - ❑ Only 2 Western biotechs gained WW rights, most left rights to China*, Asia or Korea to the licensor
- ❑ In one third of cases, Western biotechs provide a path to commercialization in the West, either in North America (NA) or NA plus Europe

*China rights includes all or some of the following: mainland China, Hong Kong, Macau and Taiwan
 Worldwide ex-China includes deals where some but not all assets are retained by licensor, or deals where licensor has right of negotiation for rights in China.
 North American + Europe includes one deal also granting rights in Japan, and one granting rights also in Australia

China still driving the deal volume in Asia

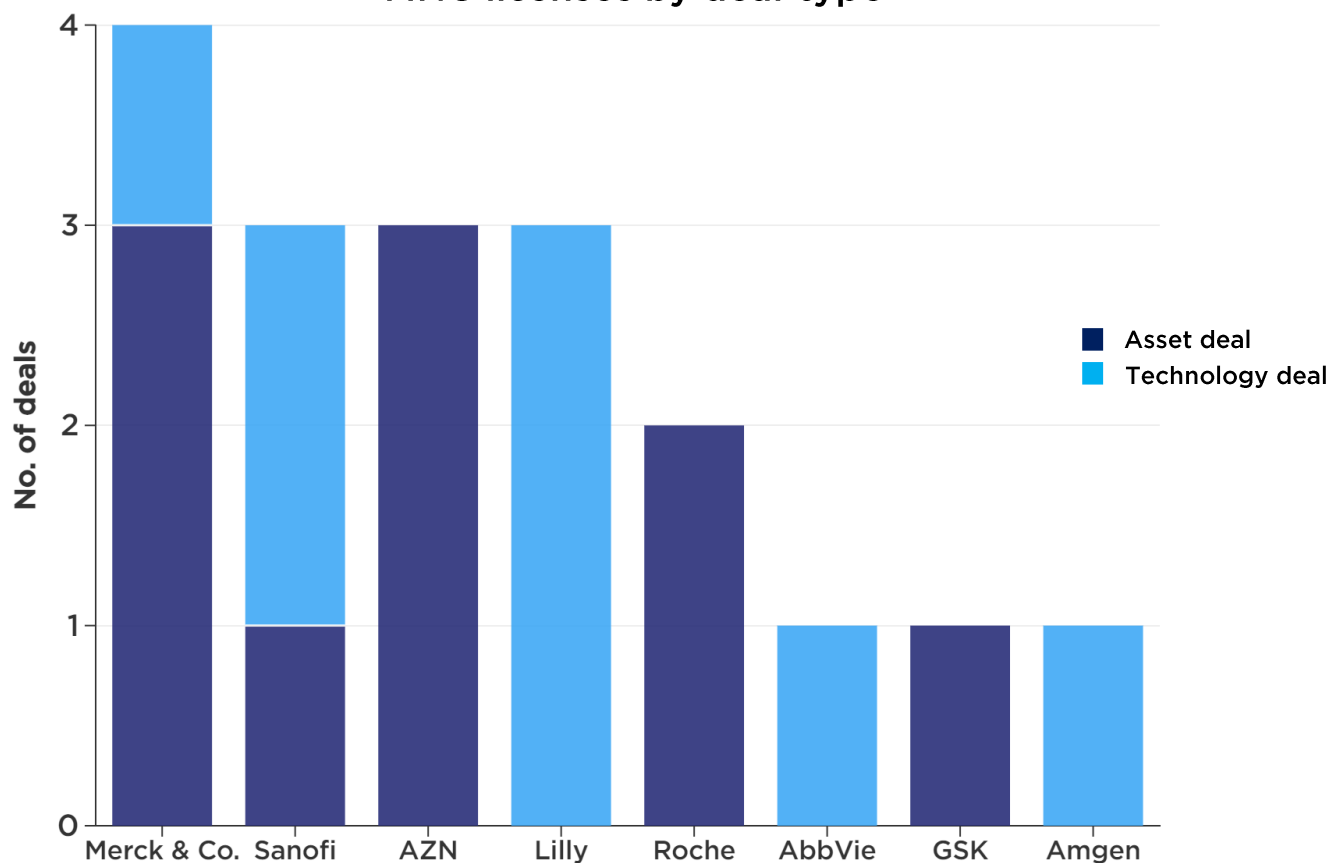
Licensors location



- ❑ Two thirds of the deals are with China-headquartered innovator companies, with Japan, Taiwan and South Korea making up the difference
- ❑ Japan's 5 deals are split between 3 companies: Sosei Heptares, PeptiDream and Carna Biosciences
- ❑ Taiwan had four dealmakers during the period, all private biotechs
- ❑ All 3 S. Korea deals were with small-cap public companies

MNC leaderboard

MNC licenses by deal-type



- ☐ Three MNCs – Lilly, AbbVie, and Amgen – entered deals around technologies alone. They were not asset shopping
- ☐ Roche, AstraZeneca and GSK are the reverse, with deals only for assets, not technologies
- ☐ Merck and Sanofi sought both

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Nov. 2-3, 2023

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BioCentury, BayHelix and Insights Partner McKinsey & Company return to Shanghai for our 10th China Healthcare Summit with a focus on reengagement and cross-border collaboration.



Nov. 14, 2023

LONDON

Join BioCentury and co-host BIA (U.K. BioIndustry Association) for a half-day of C-level networking and debate on the sidelines of the annual Jefferies London Healthcare Conference.



Dec. 5, 2023

BOSTON

Join BioCentury for our 3rd annual Boston/Cambridge Executive Networking Dinner and meet industry, academic and financial leaders from across biopharma's hottest ecosystem.



Jan. 8, 2024

SAN FRANCISCO

Join BioCentury, Panacea Venture and Maytech Global for our 10th East-West Networking Reception for C-level executives, held on the sidelines of the annual J.P. Morgan Healthcare Conference.



Mar. 4-5, 2024*

SINGAPORE

BioCentury and BayHelix bring the 3rd East-West Biopharma Summit to Singapore to showcase the best models to globalize biotech value, from product development to financing to market access.

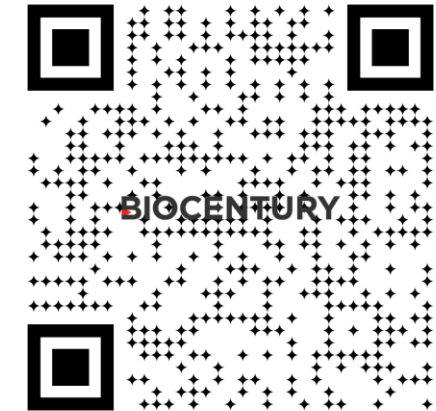
**Dates subject to change*



May 12-14, 2024

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