Health Advances™

2024 Year in Review and Outlook for 2025

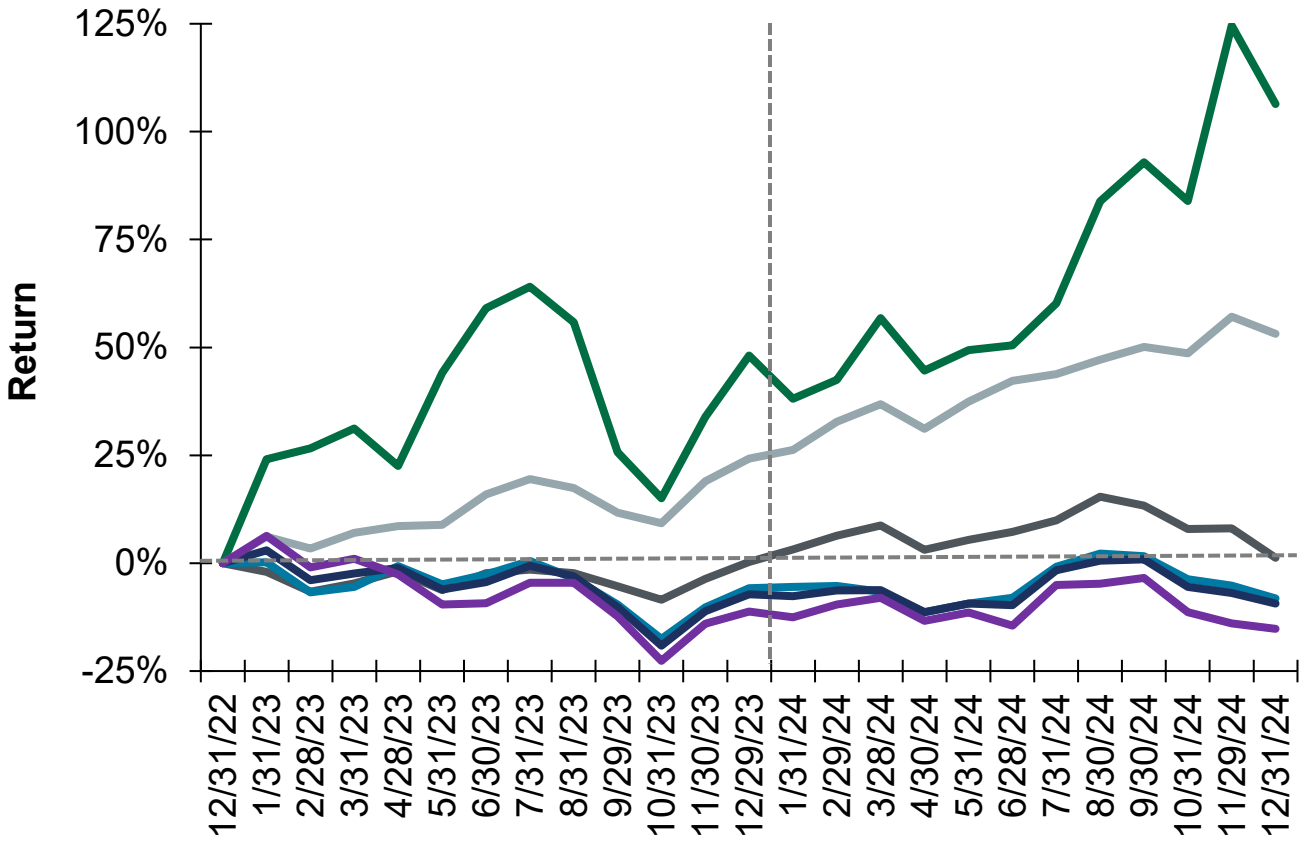
January 2025

- ***Industry Performance Metrics***
- Key 2024 Happenings and 2025 Predictions
- 2025 Thoughts from Our Clients
- Our Team

After pandemic highs, Dx and LST have significantly underperformed relative to overall market growth. PM is a bright spot.

Dx, PM, and LST & Services Composite Index

All Companies, Weighted by Market Cap



	2024 Return	Cumulative Return from 12/31/2022
HA PM Index[1]	39%	106%
SPX	23%	53%
SPXHC	1%	1%
HA Dx Index[2]	-2%	-8%
HA Composite Dx/PM/LST & Services Index	-2%	-9%
HA LST & Services Index[3]	-5%	-15%

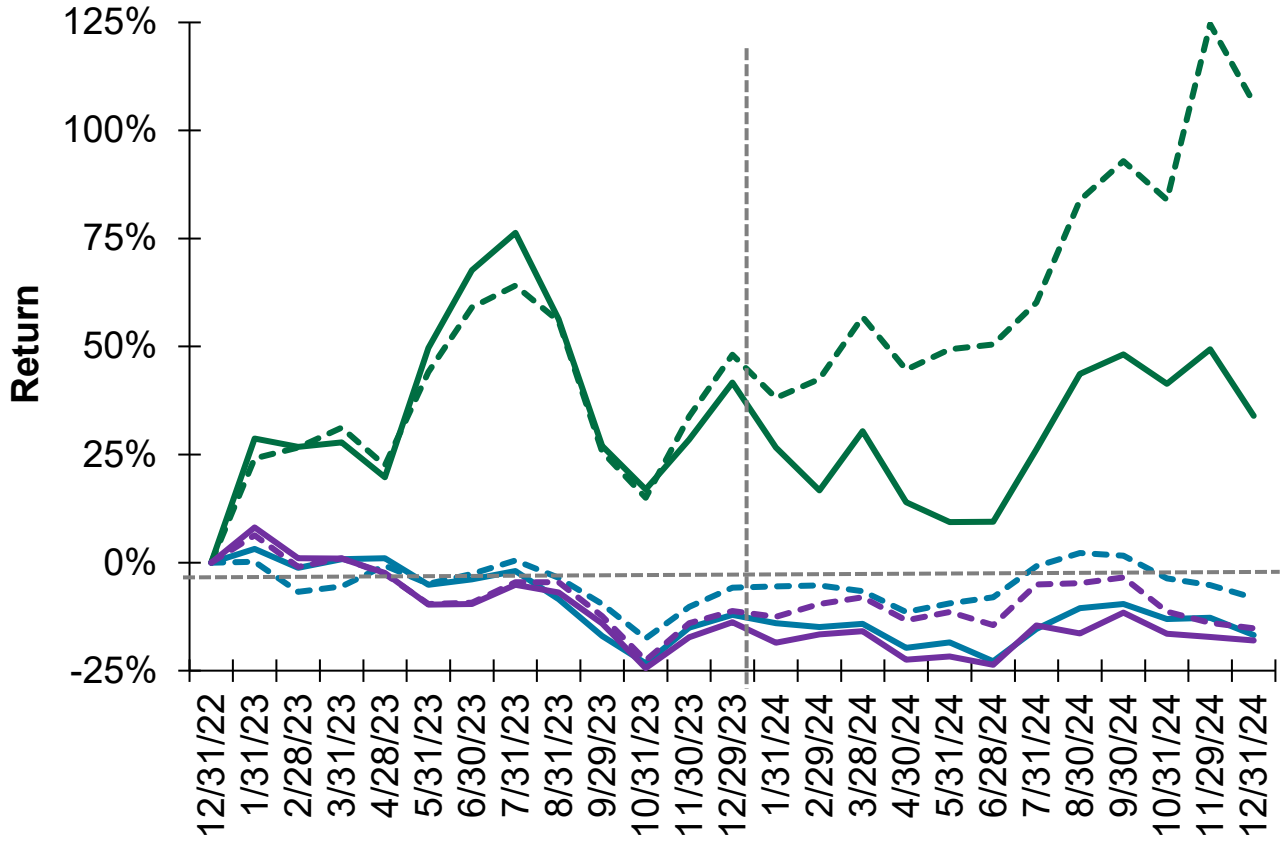
[1] Represents select precision medicine companies as follows: Natera, Exact Sciences, Guardant Health, Veracyte, Biodesix, Myriad Genetics, CareDx, NeoGenomics.
[2] Represents select diagnostics companies as follows: Roche, Abbott, Danaher, BD, Siemens Healthineers, Hologic, SeeGene, Sysmex, Diasorin, SD Biosensor, Biomerieux, Quidel Ortho, Bio-Rad, QIAGEN, OraSure.
[3] Represents select LST & Services companies as follows: Thermo Fisher, Merck KGaA, Sophia Genetics, Biotage, AGC Bio, 10x Genomics, Akoya Biosciences, Cytek Biosciences, MaxCyte, Oxford Nanopore, Pac Bio, Standard Biotools, Twist Biosciences, Lonza, WuXi AppTec, WuXi Biologics, Mettler Toledo, Sartorius, BioTechne, Corning, Revvity, Agilent, Quanterix.

Note: SPX = S&P 500 overall stock index, SPXHC = S&P 500 Health Care Index.
Source: Health Advances analysis, Refinitiv, Yahoo Finance.

However, Natera is driving a significant share of the PM growth. Within Dx and LST & Services, diversified large cap companies are faring slightly better than the overall index.

Dx, PM, and LST & Services Composite Index

Adjusted[4] vs. Non-Adjusted, Weighted by Market Cap



	2024 Return	Cumulative Return from 12/31/2022
Non-adjusted HA PM Index	39%	106%
Adjusted HA PM Index[1]	-5%	34%
Non-adjusted HA Dx Index	-2%	-8%
Adjusted HA Dx Index[2]	-5%	-17%
Non-adjusted HA LST & Services Index	-5%	-15%
Adjusted HA LST & Services Index[3]	-5%	-18%

Adjusted
Non-Adjusted

[1] Represents the precision medicine index as described previously without Natera.
[2] Represents the diagnostics index with Roche, Abbott, Danaher, Siemens, and BD removed.
[3] Represents the LST & Services index with Thermo Fisher and Merck KGaA removed.
[4] Companies with market caps > $50B were excluded due to outsized contribution to index (Roche, Abbott, Danaher, BD, Siemens Healthineers, Thermo Fisher, Merck KGaA) and those with significant impact to index that are not representative of market trends (Natera).

Source: Health Advances analysis, Refinitiv, Yahoo Finance.

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The new year holds promise as the start of a recovery across Diagnostics (Dx), Precision Medicine (PM), and Life Science Tools(LST) & Services.

	Diagnostics	Precision Medicine	Life Science Tools & Services
2024 Year in Review	1 Mixed, but general down, financial performance and deal activity 2 Funding & innovation focus in rapid AST, digital pathology, and sepsis 3 Infusion of significant regulatory uncertainty	1 Increasingly crowded liquid biopsy space across the patient journey 2 Enthusiasm for non-invasive early cancer detection; questions on approach persist 3 Specialty lab M&A to address business model challenges	1 Funding/biotech research softness 2 Destocking challenges resolved 3 Slow investment and deal activity in LST&S
What's Next in 2025	A Advancements in autoimmune, CNS, and cardiovascular testing B Continued focus on POC C Uptick (though small) in deals and financial performance	A Increased clarity on the role of landmark vs. serial MRD testing B Need for AI-based CDx to support new pipeline modalities C Growing promise of precision medicine outside oncology	A Continued interest in single cell, spatial, and multiomics B Continued focus on efficient, scalable, and low cost drug dev. & mfg. C Investor interest in LST & Services "picks and shovels"

Within Diagnostics POC, CNS, autoimmune, and cardiovascular will drive growth. Deal and funding activity is expected to increase slightly.

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1 It wasn't all bad for diagnostics in 2024 and we believe 2023/2024 was the bottom, though a recovery is likely to be slow.

The Good

- # of PE Deals ↑ 36%
- Average Size of Each PE/VC Investments ↑ 33%
- 1 $100MM Raise[2]

The Bad

- Only 3 M&A deals[1]
- VC Investment Count ↓ 33%

The Ugly

- 2nd year of no deals >$1B
- Dx Stock Returns -2% in 2024
- Dx Stock Returns -8% since 2022

Rationale

- High cost of capital
- Particularly earlier in the year, misalignment between buyers and sellers on valuation
- COVID hangover and investor desire for de-risked (closer to commercial) investments
- Large OEM focus on restructuring/internal activities
- Small players focused on managing cash flow
- Lack of IPO market drives some upside in other investment sectors

[1] Bruker/Elitech, Roche/Lumira, OraSure/Sherlock.Quest and LabCorp M&A adds to this number but is not included in the Health Advances diagnostics definitions which focused on product companies.
[2] Cytovale.
Note: Some data points do not cleanly separate precision medicine and diagnostics.

2 Sepsis, rapid AST, and digital pathology saw significant investment and innovation milestones in 2024.

Sepsis

Examples

Inflammatix

- **Sep 12tn, 2024** – Inflammatix raised $57 million in a Series E funding round

Cytovale

- **Oct 10th, 2024** – Cytovale Completes $100 Million Series D Funding

deepull

- **Dec 2nd, 2024** – DeepUll receives FDA Breakthrough Device Designation for its UllCORE Bloodstream Infection Test

52North

- **Dec 5th, 2024** – 52North closed a $6MM funding round to advance development of a lateral flow sepsis test

MeMed

- **Dec 10th, 2024** – FDA grants breakthrough device designation to MeMed Severity

Rapid AST

Examples

SeLux DX

- **Feb 1st, 2024** – SeLux Diagnostics raised $48M

Q-LINEA

- **Apr 26, 2024** - Swedish firm Q-linea's ASTar system which provides quantitative phenotypic antimicrobial susceptibility and minimum inhibitory concentration results from positive blood cultures within 24 hours cleared by the FDA

ESCMID

- **Apr 29, 2024** – Panelists at European Society of Clinical Microbiology and Infectious Diseases global congress call for new, rapid AS tests

ACCELERATE DIAGNOSTICS

- **Aug 30th, 2024** – Accelerate Diagnostics is preparing to submit its new Wave antimicrobial susceptibility testing platform to the FDA

Digital Pathology

Examples

PathAI

- **Feb 13th, 2024** - PathAI partnership with Roche to develop AI-enabled digital pathology algorithms in the companion diagnostics space

MultiplAI

- **Mar 27th, 2024** – OmnigenicsAI and MultiplAI Health announce they will combine and go public

Quest Diagnostics

- **May 1st, 2024** – Quest announces planned acquisition of select assets from PathAI

3 The rollercoaster of regulatory uncertainty in diagnostics was fueled by the FDA's final LDT rule and subsequent lawsuits as well as additional challenges to IVDR.

US LDT Regulation Timeline*

Longstanding Attempts to Reform LDT Regulation

- **2014-2016:** FDA drafts LDT guidance that is ultimately put on hold
- **2020 – 2023:** VITAL Act and VALID Act introduced in Congress multiple times with limited progress
- **2020:** Trump admin HHS prohibits FDA from requiring premarket review of LDTs without notice-and-comment rulemaking
- **2023**: FDA, under Biden admin, issues proposed rule ending LDT enforcement

FDA Issues Final Rule Ending Enforcement Discretion

Litigation Challenges Final Rule

- **2 lawsuits challenging FDA authority to regulate LDTs** filed by the ACLA and AMP and consolidated into one case in September
- **Courts have greater power to overturn final rule after Supreme Court overturned the Chevron doctrine**, which required courts to defer to a federal agency's interpretation of ambiguous Congressional statutes, in June

Regulatory Uncertainty Given Potential to Overturn FDA Rule

- **Court Decision:** Judgment of litigation expected early 2025, new suits possible
- **HHS Issues Revised Policies:** Trump admin may revoke or revise rule given deregulatory goal/2020 opinion
- **Act of Congress:** Congress could pass the VALID Act, in light of growing support given the unpopular final rule

EU IVDR Updates

2014 - 2023 | **2024** | **2025**

July
Implementation Timelines Extended

October
EU Parliament passes resolution citing 'urgent need' for MDR/IVDR revision

* Key events shown, not comprehensive of all regulation attempts applicable to LDTs.
Note: VALID Act = Verifying Accurate, Leading-edge IVCT Development Act, VITAL Act = Verified Innovative Testing in American Laboratories Act, HHS = U.S. Department of Health and Human Services, ACLA = American Clinical Laboratory Association, AMP = Association for Molecular Pathology.
Source: Health Advances analysis, FDA, JAMA 2024, Arnold&Porter.

A In 2025, Dx innovation will continue to move beyond oncology, with CNS, autoimmune disease, and cardiovascular disease capturing attention and driving growth.

CNS

As disease modifying therapies continue to enter the market, the value of early detection and response monitoring is driving tests in this area over the finish line

Physiological
- TBI
- Aneurysm
- Stroke

TBICheck™ · BIOMÉRIEUX · ISCHEMIA CARE · Abbott · Astria Biosciences · UPFRONT TIME IS LIFE · abcd · Neurovascular Diagnostics

Mental Health
- Depression
- Bipolar disorder
- Autism

SYNLAB · MindX Sciences · BioROSA TECHNOLOGIES · ALCEDIAG

Neurodegeneration
- Alzheimer's
- Parkinson's
- ALS

AMPRION precision brain diagnostics · DIAMIR Targeted Diagnostics for Brain Health · CND Life Sciences · C2N DIAGNOSTICS · AltPep · Roche · Lilly · ALZpath · sunbirdbio

Autoimmune

With advances in multiplex technology, proteomics, and AI facilitating signature-based tests, testing solutions for these multifactorial diseases are closer to reality

progentec — **aiSLE DX:** Blood tests to identify SLE patient's future risk of lupus flare and level of disease activity

EmbracePlus: Data from EDA, PPG, accelerometer, and skin temperature sensors; FDA-cleared — empatica

viuhealth — **ViuHealth App:** A range of tools in one app for autoimmune patients and physicians to streamline care and improve outcomes

NIH AMP AIM: Part of NIH efforts in autoimmune diseases, with a focus on using advanced imaging to reconstruct autoimmune diseases at the tissue level — OMRF Oklahoma Medical Research Foundation

Cardiovascular

Signature-based and POC tests are also having an impact in CV where risk profiling and early diagnosis can positively impact patient outcomes

Cardio Diagnostics — **PrecisionCHD:** AI-powered blood test leveraging genetic and epigenetic markers to diagnose coronary heart disease

Test based on measuring FcyRIIa on platelets as a predictor of cardiovascular event risk in patients with atherosclerotic cardiovascular disease to guide treatment — prolocor™

polymedco — Approval of the first high-sensitivity cardiac troponin assay for use at the POC - PATHFAST

Creates a metabolomic digital twin capturing hundreds of metabolomic parameters from a blood sample that can generate actionable insights across the patient journey — lifespin

Source: Health Advances analysis, company websites.

B Underlying healthcare delivery trends, technological advances, and enhanced practices among POC companies combine to drive a strong growth outlook.

Underlying Market Trends

- Provider consolidation continues due to hospitals closures and expansion of IHNs
- Shortage of lab personnel despite industry and government efforts pushes testing out to decentralized sites
- Growing prevalence of chronic diseases such as diabetes, CKD, Alzheimer's
- Push to lower-cost and convenient outpatient care settings

Advances in Platform Performance

- Multi-disciplinary platforms (e.g., molecular and immunoassay)
- High multiplex capabilities (12+)
- Rapid turnaround time (5-15 minutes)
- High sensitivity detection
- Improved workflow
- Low/lower COGS
- Streamlined reporting and remote connectivity

Optimized Execution

- More sophisticated go-to-market planning and long-term strategy including customer segment focus and holistic menu strategy
- Emphasis on market access and market development requirements
- Experienced management teams

Historical POC Growth of 7% with Drivers of Continued Expansion in Place

Multi-Disciplinary

vital, Fluxergy, chronus health, truvian

Next Gen Molecular (Multiplexing, Rapid TAT)

BIOMÉRIEUX, Roche, binx, QuidelOrtho

At Home & OTC

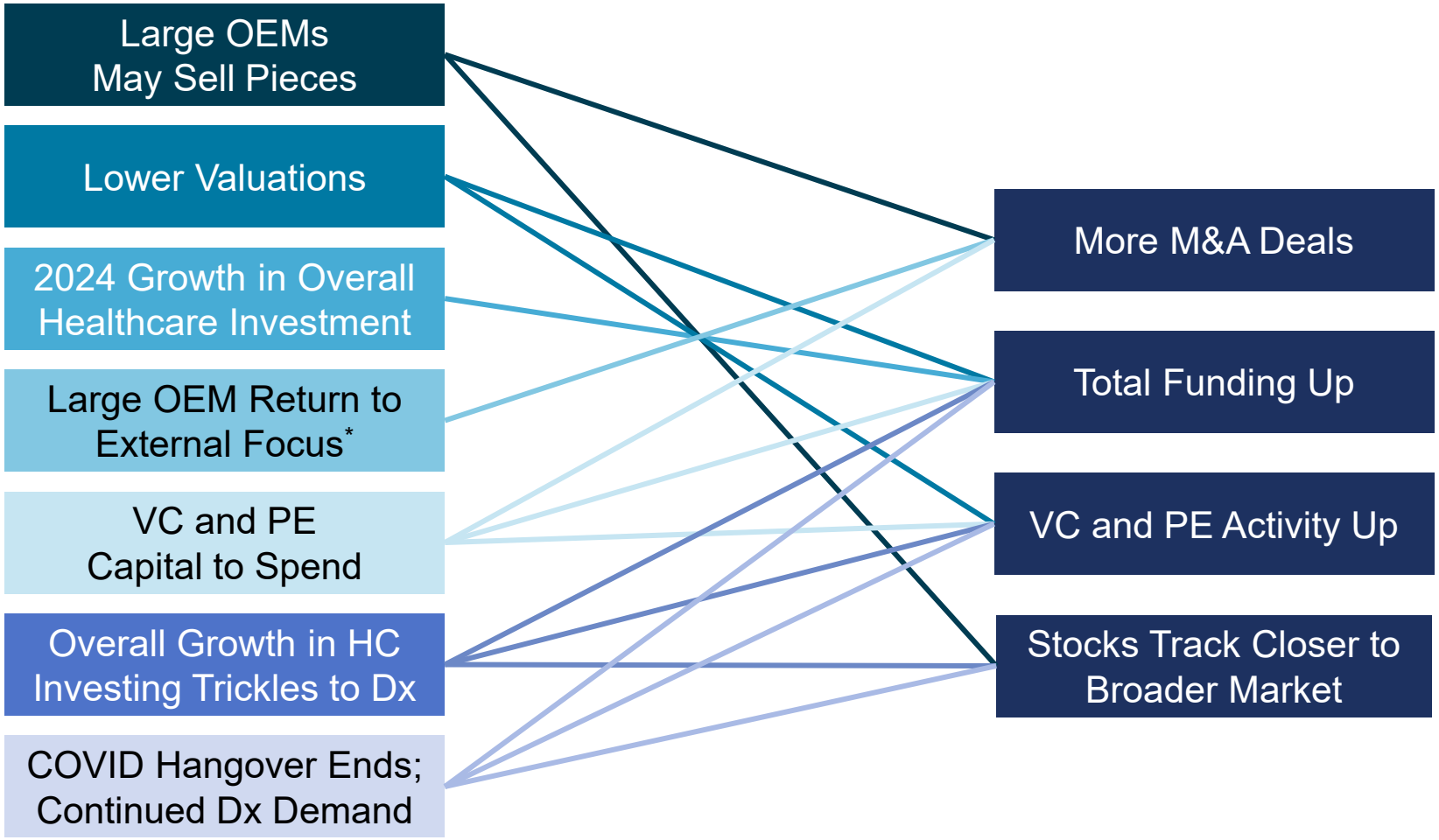
Co-Dx, OraSure Technologies, Inc., NOWDiagnostics, JanaCare

Next Gen IA and Hematology POC

Roche, SIEMENS Healthineers, PHC GROUP, PixCell MEDICAL, OSLER

Source: Health Advances analysis.

C Multiple factors drive (cautious) optimism for improvements in the M&A, funding, and stock performance in 2025 for diagnostics.



* After a couple years of internal restructuring focus.

The promise of Precision Medicine will continue to manifest with new technologies and new clinical applications.

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1 The oncology liquid biopsy market is highly competitive, featuring a diverse spectrum of players ranging from innovative startups to well-established reference labs.

Competitive Landscape for Liquid Biopsy in Oncology*

2024

Early Detection

- ARNA GENOMICS
- GENETRON 泛生子 ANSWERS FOR CANCER
- 燃石医学 Burning Rock Dx
- GRAIL
- NAVERIS
- LUCENCE
- SINGLERA Genomics
- 4D Lifetec
- ClearNote HEALTH
- LungLifeAI
- CellMax Life
- exosomedx
- MERCY BIOANALYTICS
- EXACT SCIENCES
- Freenome
- GUARDANT
- syantra
- exai

Therapy Selection

- Abbott
- GUARDANT
- 燃石医学 Burning Rock Dx
- FOUNDATION MEDICINE
- PANAGENE
- invivoscribe
- NEO GENOMICS
- AmoyDx 艾德生物
- BIOCARTIS
- Myriad genetics
- labcorp
- CARIS LIFE SCIENCES
- QIAGEN
- Personalis
- TEMPUS
- EXACT SCIENCES
- BGI
- GENESEEQ
- PILLAR BIOSCIENCES
- Agena BIOSCIENCE
- illumina
- LUCENCE
- Predicine
- SOPHiA GENETICS
- ThermoFisher SCIENTIFIC
- epic sciences THE POWER OF CLARITY.

Minimal Residual Disease (MRD)

- natera
- Quest Diagnostics
- GUARDANT
- NEO GENOMICS
- ClinicalGenomics
- NAVERIS
- 燃石医学 Burning Rock Dx
- illumina
- GENESEEQ
- DROPLET BIOSCIENCES
- IDT INTEGRATED DNA TECHNOLOGIES
- SINGLERA Genomics
- TEMPUS
- PILLAR BIOSCIENCES
- Adaptive biotechnologies
- EXACT SCIENCES
- Personalis
- exai
- FOUNDATION MEDICINE
- FORESIGHT DIAGNOSTICS
- Predicine
- GRAIL

* List is not exhaustive,
Source: Health Advances analysis, company websites.

2 The optimal strategy for blood-based early cancer detection remains uncertain, with both single-cancer and MCED tests having benefits and drawbacks.

Single Cancer LBx Early-Detection Tests

- Designed to *prioritize sensitivity* to ensure that tests have a low false negative rate. Tests, however, often result in high false positive rates
- Used for individuals at high risk or showing symptoms of a particular cancer – most often where a standard screening methods exists but compliance is low

Multi-Cancer Early Detection (MCED) LBx Tests

- Designed to *prioritize specificity* at the expense of sensitivity resulting in a very low false positive rates (<1%). Sensitivity varies across cancer types and drops significantly for Stage 1 detection
- Used for individuals at average risk to complement other screening methods as well as detection for cancers without standard screening methods

Health Advances AstraZeneca

Click here to view our recent publication in the Journal of Personalized Medicine on current utilization of MCEDs and barriers to widespread adoption

Select Commercially Available Tests

shield by GUARDANT; epi pro colon 2.0 CE; Select mdx for Prostate Cancer; syantra DX BREAST CANCER; FirstLook By DELFI Diagnostics; oncoguard liver by EXACT SCIENCES

Galleri Multi-cancer early detection; EarlyDx CancerRadar; oneTEST for early detection of cancers; Singlera PanSeer

Experts indicate that single cancer tests could demonstrate outcomes and cost-effectiveness more readily in the near term, due to their applicability in targeted, high-risk patient cohorts

Source: Health Advances analysis, company websites.

3 Specialty lab M&A activity picked up in 2024 with the hope of accelerating innovation and ultimately a path to profitability.

Tempus Expects $600M Ambry Genetics Acquisition to Accelerate Path to Cash Flow Breakeven

November 5, 2024

Myriad Genetics to Acquire Lab, Assays From Intermountain Precision Genomics

January 19, 2024

Veracyte Acquires C2i Genomics for up to $95M

January 8, 2024

LabGenomics USA Acquires Integrated Molecular Diagnostics

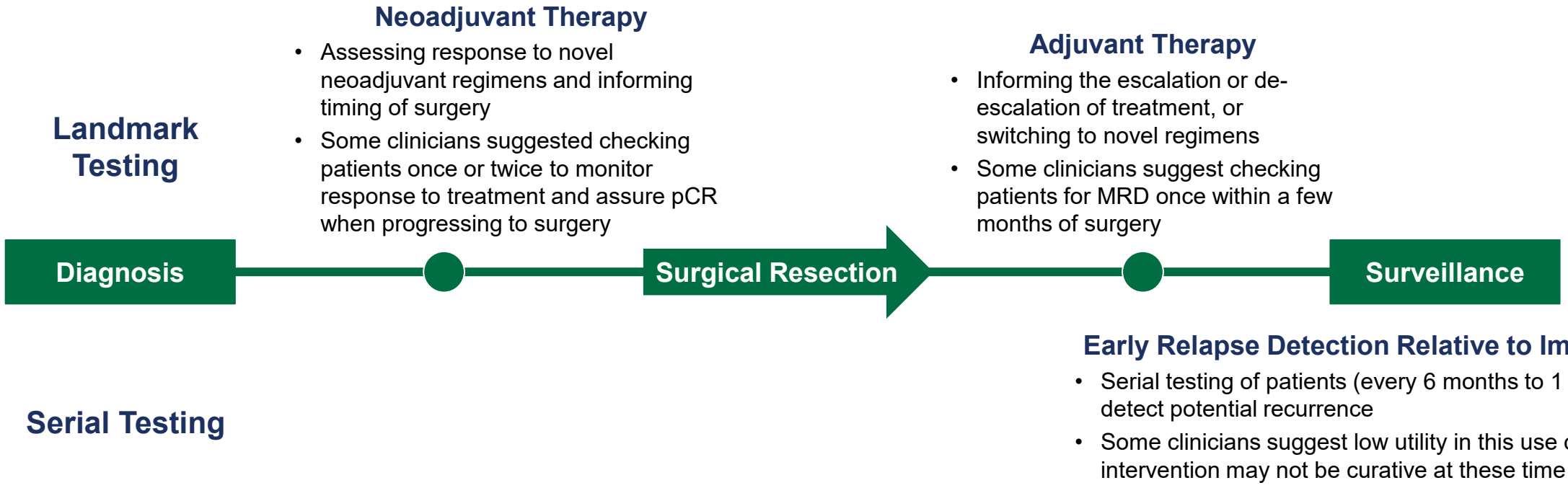
October 25, 2024

"As an IVD manufacturer, we continue to assess whether acquiring a specialty lab will enhance our ability to innovate faster and become a more attractive partner to pharma." – IVD Executive

Source: Health Advances analysis, GenomeWeb.

A Specifically, in early-stage solid tumor MRD testing, there are ongoing questions around optimal testing frequency and technology for certain use cases.

Solid Tumor Patient Journey with MRD Testing

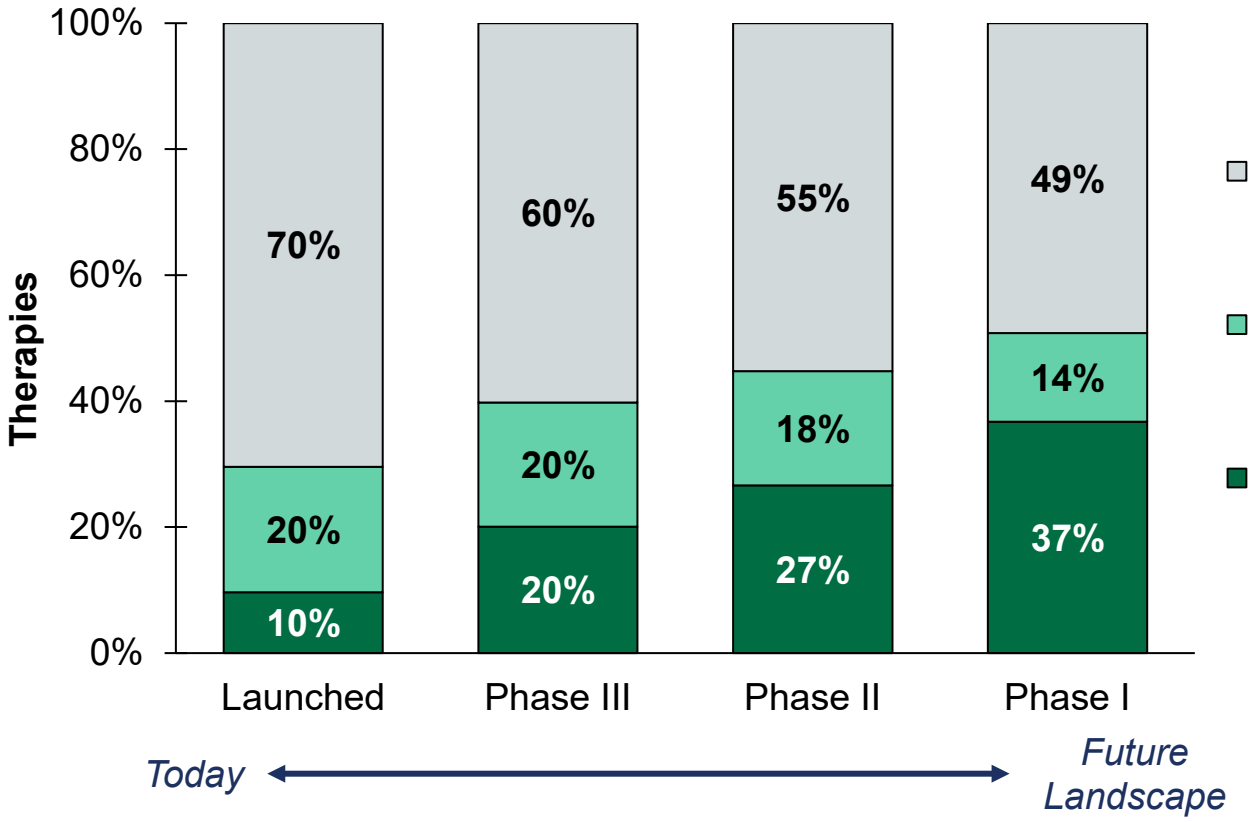


Experts speculate that highly sensitive, tumor-informed tests will be necessary for landmark testing, while the lower sensitivity of tumor-naïve tests can be compensated for with serial testing

Note: pCR = pathologic complete response.
Source: Health Advances analysis, company websites.

B Trend toward multivalent antibodies and other advanced modalities will likely lead to more multiplex IHC and digital pathology CDx solutions.

Oncology Clinical Development Pipeline

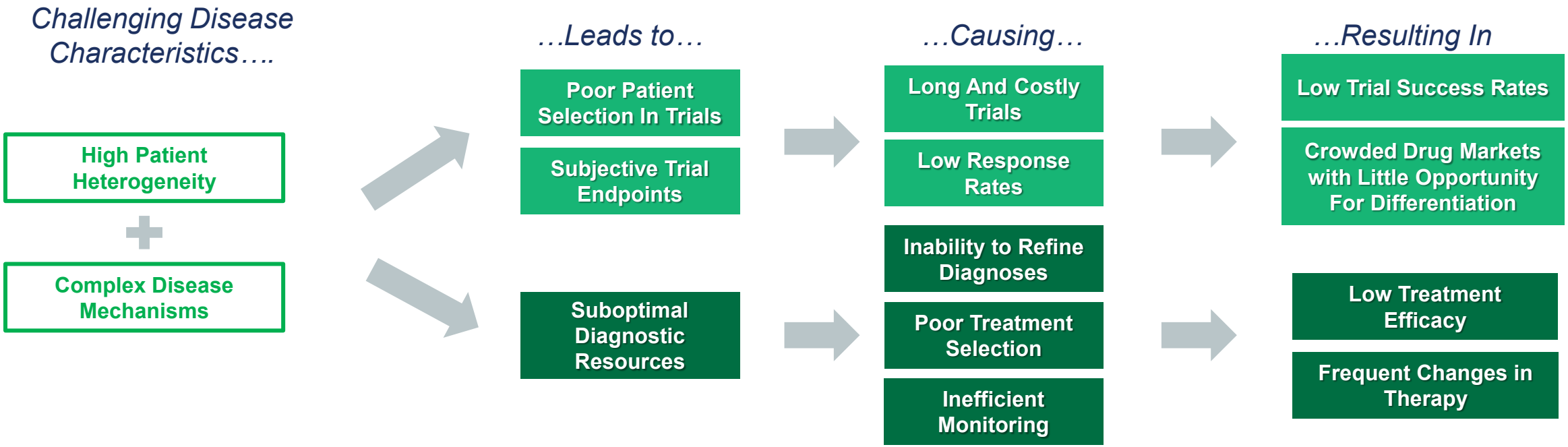


"Advanced therapies are likely to require low threshold, spatial recognition, or multiplex solutions which can only be achieved with digital and computational pathology approaches."
– Lab Director

Note: Multivalent antibodies have two to four distinct molecular targets. Advanced modalities include antibody-drug conjugates (ADCs), protein degraders (PROTACs), and cell therapies. Other therapies include traditional chemotherapeutic agents, hormonal therapies, general immunomodulatory therapies, etc.
Source: Health Advances analysis, PharmaProjects.

C Companion diagnostics, pivotal in oncology drug development, are now poised to tackle challenges across other therapeutic areas.

Challenges Associated with Drug Development and Patient Care in Non-Oncology Disease Areas



Select Recent Biopharma Investments in Non-Oncology CDx

MERCK Prometheus Biosciences

Merck Completes Acquisition of Prometheus Biosciences, Inc.

Neuron23 QIAGEN

Neuron23 Selects Qiagen to Develop a CDx for a Clinical-Stage LRRK2 Inhibitor in PD

REGENERON sanofi

Regeneron and Sanofi Partner to Develop PRS For Those with Hereditary High Cholesterol or Persistent Atherosclerosis

Source: Health Advances analysis.

In LST and Services, interest in single cell level multiomic analyses, efficient drug discovery, and manufacturing will drive growth while investors will seek foundational investments.

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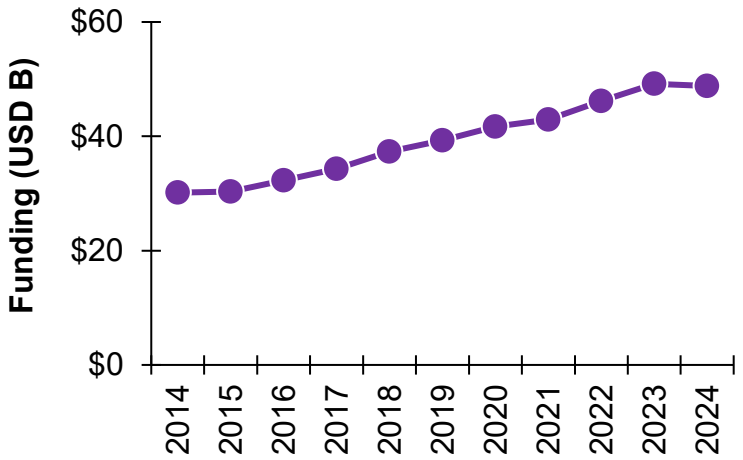
1 In 2024, funding was softer, but innovation demand and rate cuts may make 2025's outlook positive.

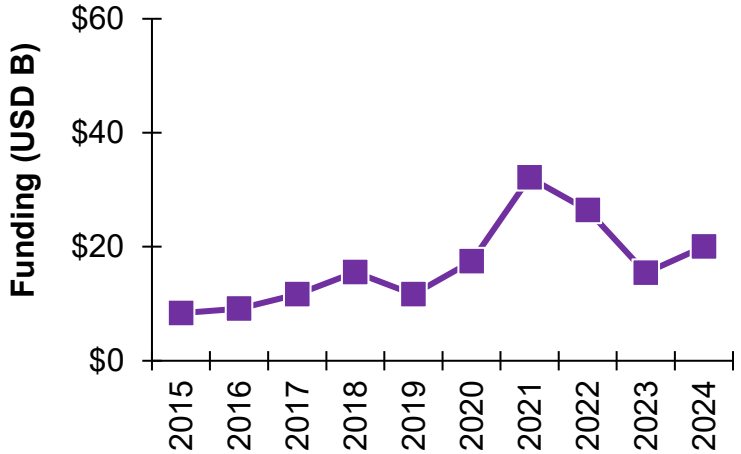
NIH Funding



- In recent years, NIH funding has generally kept pace with inflation, but declined in 2024
- Potential cuts may increase scrutiny of NIH-funded research

VC Funding in Life Sciences

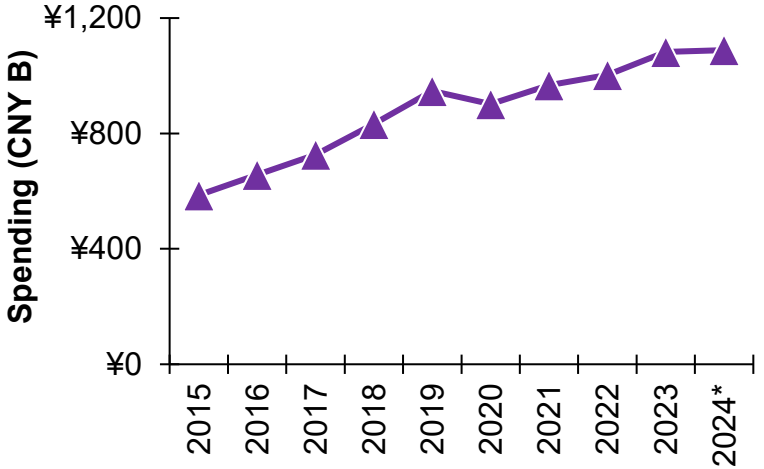
Funding for US Companies



- VC funding slight rebound in 2024 demonstrates investor interest in life sciences
- Investors are cautious, favoring companies that provide more data or are in later stages of development

Chinese Public Spending on Science and Technology

Ministry of Finance PRC

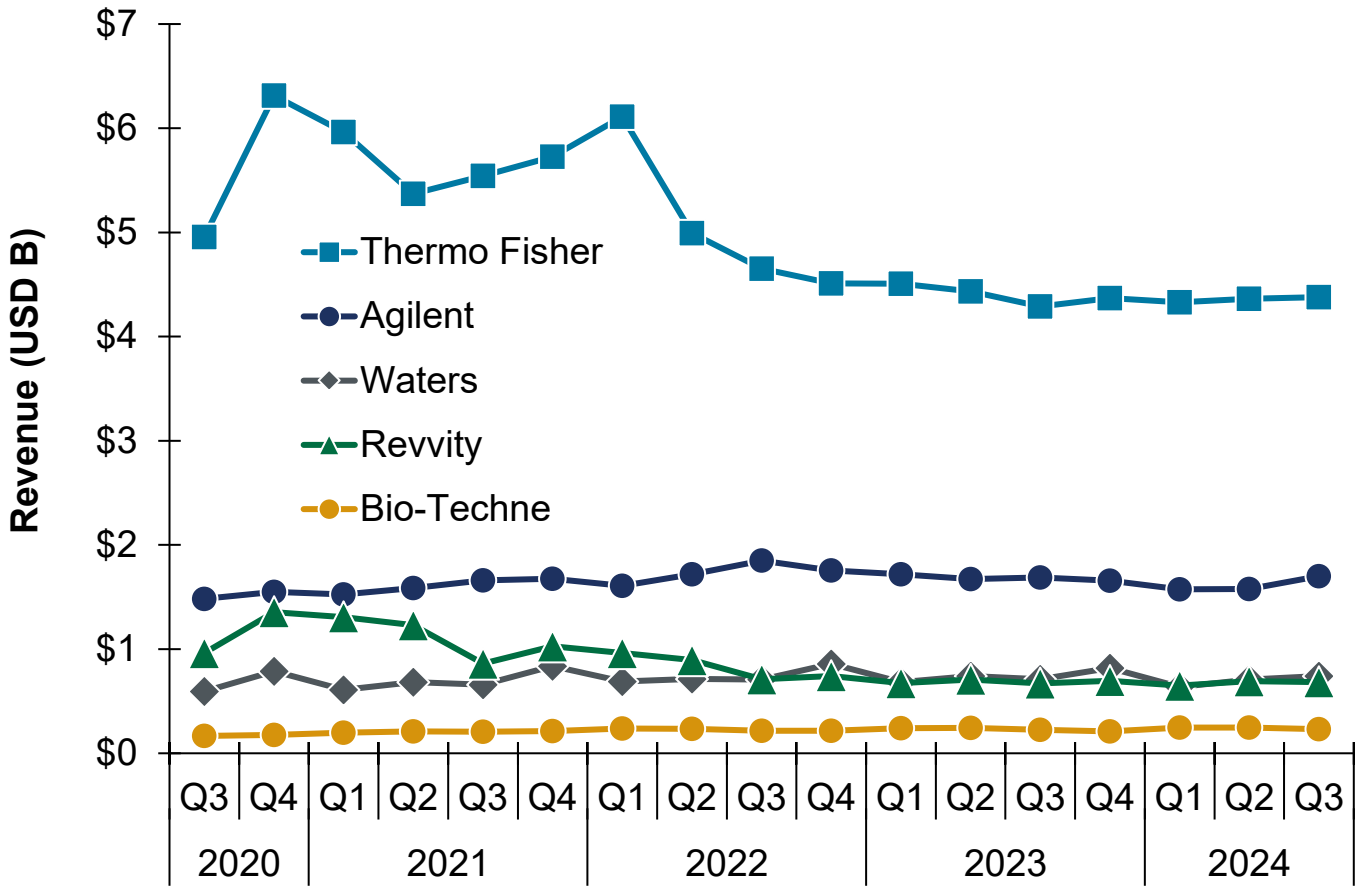


- In contrast to other countries, government-related sources play a dominant role in China's science and technology research and development

* Estimated whole year spending based on 2024 January – November data, which indicates a 0.6% growth compared to the same period in 2023.
Note: VC funding includes all venture funding for US companies in industries likely to be dependent on life science tools and reagents, including pharmaceuticals, biotechnology, CROs, and lab testing services. PRC = People's Republic of China.
Source: Health Advances analysis, Biomedtracker, NIH Databook, PhRMA 2024 Member Survey, Rhodium Group, Ministry of Finance of the People's Republic of China.

1 Some major tools players saw small upticks in sales in the second part of 2024, and report that destocking is largely over.

LST Companies Quarterly Sales



"Most of our customers are the larger customers with stuff that is on-market. When I look back at ***what has caused all the pain of the last kind of two years in this business, it was destocking*** *at those customers,* ***and I believe that is largely behind us****. And so that's why I think it's really encouraging."*
– Matt McGrew, CFO at Danaher

October 2024

"OEM customer ***destocking appears to have abated****."*
– James Hippel, CFO at Bio-Techne

August 2024

"The additive manufacturing is getting a bit stronger after the destocking." – Maike Schuh, CFO at Evonik

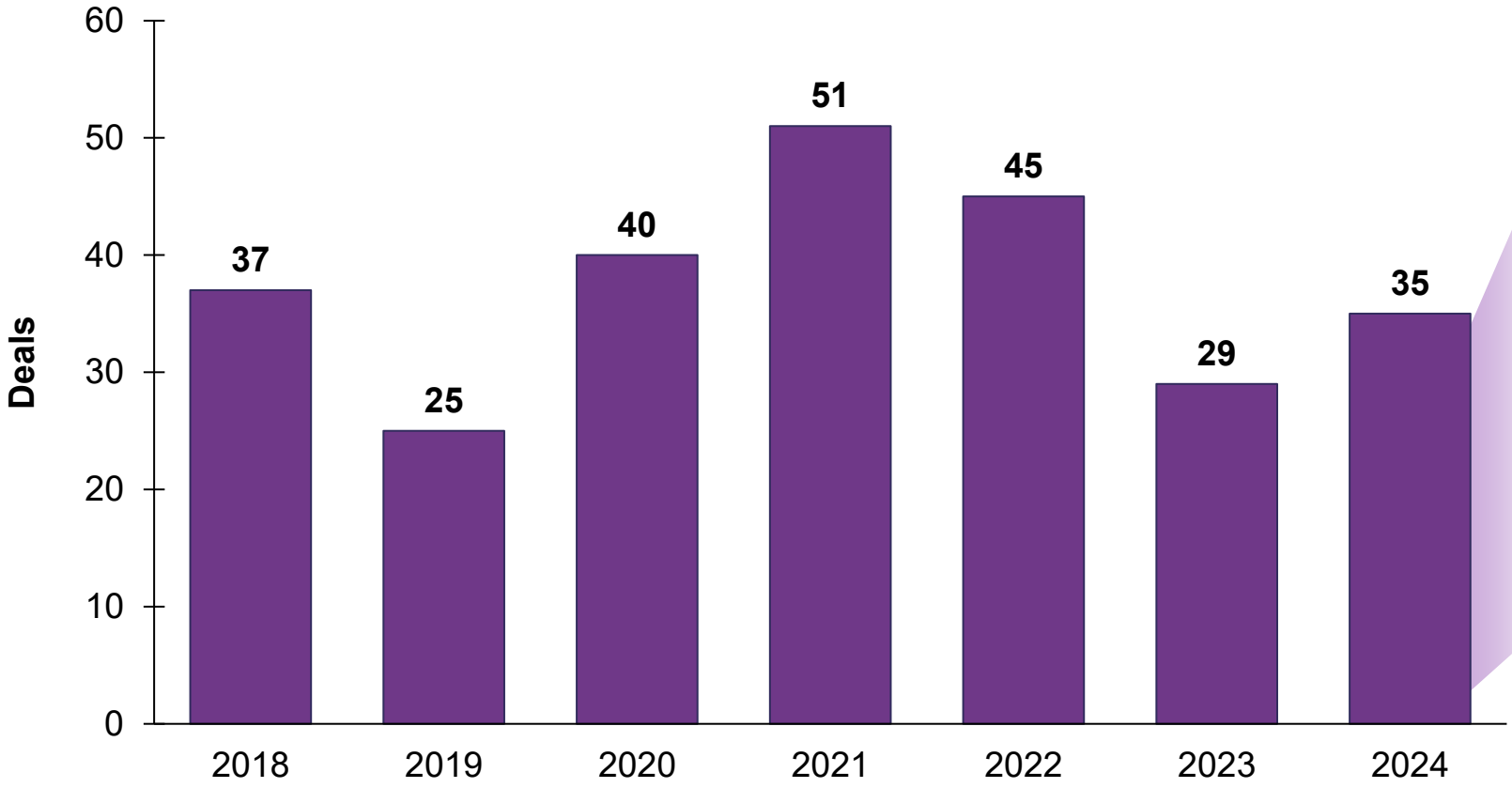
November 2024

Source: Health Advances analysis, company materials.

3 Deal activity for LST & Services in 2024 saw a slight increase but remained slower than three years ago.

LST & Services Transactions

Only Initial Platform Investments. Excludes Add-on Transactions



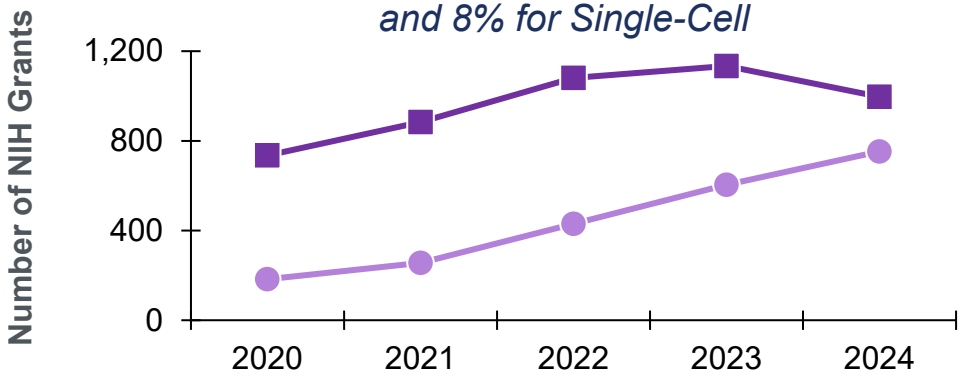
Despite biotech market softness, a slight uptick in life science tools and services investments occurred due to high levels of available capital among PE firms, interest rate cuts expectations, and opportunities for consolidation to build comprehensive service offerings and enhance operational efficiencies

Source: Health Advances analysis, PitchBook.

A In 2025, we expect to see continued focus on spatial, single cell, and multiomics analyses to better understand biological systems.

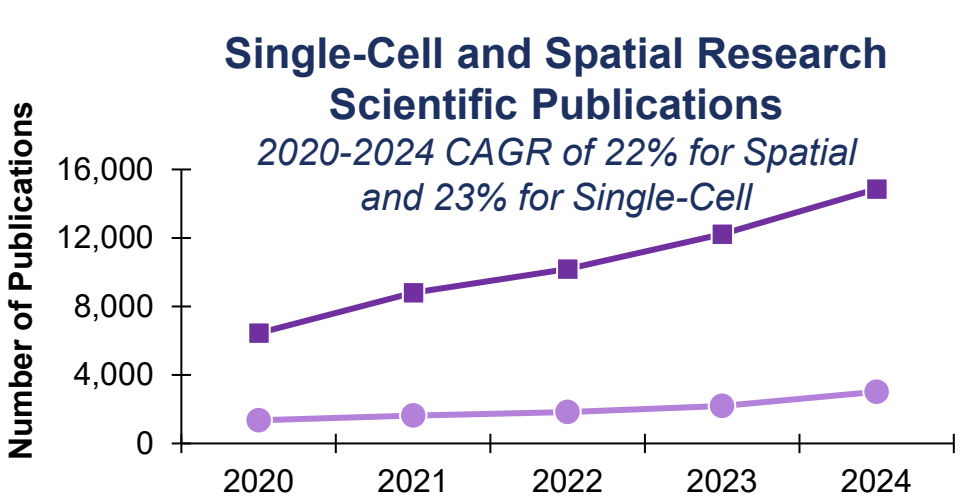
Single-Cell and Spatial Research NIH Grants

2020-2024 CAGR of 42% for Spatial and 8% for Single-Cell



Single-Cell and Spatial Research Scientific Publications

2020-2024 CAGR of 22% for Spatial and 23% for Single-Cell



- Continued use of spatial analyses to better understand sample heterogeneity and make more informed conclusions
  - Interest in refining signatures in oncology and immunology is growing
  - Spatial analysis emerging as a key tool to understand drug action in humans
- Increasing spatial resolution and instrument-free single cell method adoption
- Increased use of multiomics to better understand biological systems and aide in disease insights
- Growing use of single cell and spatial analyses for clinical trial testing

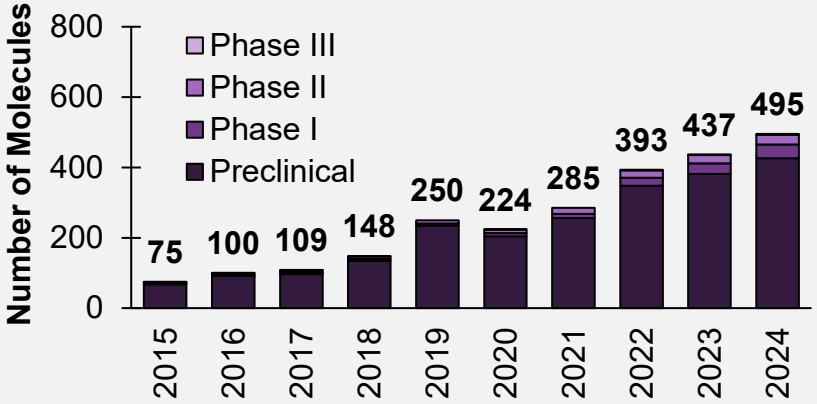
Source: Health Advances analysis, NIH, PubMed.

B AI in drug discovery, tools improving bioprocessing, and expanded CDMO capabilities will drive research and manufacturing advancements in the new year.

Continued AI Use in Drug Development (1)

- AI continues to make inroads in drug discovery
- Example applications of AI include target identification, predicting drug-drug interactions, compound screening for lead identification, etc.

Drug Targets Identified Using AI



- The true success of AI identified molecules will be determined as programs progress through development

Sustained Investment in Tools Improving Bioprocessing (2)

- ❑ Continued focus on enhanced data management and analyses through digitization
- ❑ Sustained focus on automation to improve efficiency
- ❑ Persistent adoption of Process Analytical Technologies (P.A.T.) for real-time monitoring and control to ensure higher quality and consistency
- ❑ Continued adoption of continuous processes

Bruker Announces Acquisition of Tornado Spectral Systems to Expand Its Biopharma Process Analytical Technology (PAT) Product Portfolio

Sartorius Collaborates with Sanofi to Commercialize End-To-End Platform for Downstream Process Intensification

Expanding CDMO Capabilities (3)

- ❑ CDMOs continue to expand capabilities in order to provide more comprehensive and potentially end-to-end services to customers

"CordenPharma is making a record investment of ~€900m over the next 3 years in expanding our peptide platform, both at our CordenPharma Colorado, US site and in Europe."

"BSP Pharmaceuticals, a CDMO focused on the manufacturing of Anticancer and innovative drugs, has announced that is investing to expand the existing capacity for manufacturing High Potent and Cytotoxic compounds."

"MilliporeSigma, announced a $76 million expansion of its ADC manufacturing capabilities and capacity at its Bioconjugation Center of Excellence facility in St. Louis, Missouri. This investment will triple existing capacity and enhance the company's contract development and manufacturing organization (CDMO) offering."

Source: Health Advances analysis, Pharmaprojects.

C Investors will continue to seek foundational investments in life sciences tools and services.

LST & Services Transactions

Example Transactions

BIOLOGOS & Ampersand

Provider of standard and custom serum, cell culture media, and reagents manufacturing services specializing in quick turn products formulation and distribution

SINGLE USE SUPPORT. & novo holdings

Manufacturer of pharmaceutical packaging products

FairJourney Biologics & PARTNERS GROUP

Provider of antibody discovery and engineering services to global pharma

resonant Clinical Solutions & Audax Group

Provider of kitting, biorepository, related equipment and ancillaries, along with providing clinical trial and laboratory supply chain services to pharmaceutical and biotechnology companies

WuXi Advanced Therapies & ALTARIS

R&D and manufacturing CDMO services

Investors will continue to seek investments in companies that provide mission-critical tools and services, which are more resilient to economic fluctuations and offer opportunities for strong returns

Source: Health Advances analysis, PitchBook.

- Industry Performance Metrics
- Key 2024 Happenings and 2025 Predictions
- ***2025 Thoughts from Our Clients***
- Our Team

What are your expectations for the business climate in 2025 versus 2024?

The business climate in 2025 is set for significant improvement, driven by investor confidence, technological advancements, and regulatory shifts

- Executives expect greater investor confidence along with lower interest rates to boost funding, M&A activity, and access to capital markets
- Acceleration in economic growth is anticipated, particularly in the second half of 2025, with normalization of capital sales in labs and modest recovery in the Life Science Tools sector
- Increased interest in AI-based technologies and targeted Dx testing in areas such as neurology and oncology
- Competing pressures are expected due to tariffs and pricing policies, particularly in China and Mexico
- Regulatory and leadership changes under the new US administration could impact Dx sector investments and FDA processes
- Larger enterprises expected to take on greater innovation responsibilities as start-up funding remains constrained

"I anticipate enormous growth in 2025. We see capital markets continuing to open up and a willingness from large and mid-sized enterprises to invest in new technologies and process optimization with a longer ROI time horizon."

Source: Health Advances year-end executive survey.

What are the top 3 macro trends or business considerations keeping you up at night as you plan for 2025?

Strategic planning for 2025 requires agility in navigating geopolitical uncertainties, regulatory shifts, and technological advancements, while capitalizing on opportunities in AI and POC Dx.

- Geopolitical risks, including trade tensions and protectionist policies, create uncertainty for global supply chains and market stability
- China may pose challenges for foreign companies with pricing pressures and growing competition
- Regulatory uncertainties, particularly around LDT regulation, FDA AI approvals, and SAMD reimbursement rates, could impact market strategies
- Adoption of AI in diagnostics and research continues to accelerate, with oncologists increasingly relying on AI for treatment decisions
- POC diagnostics are evolving to meet demand closer to patients, driven by COVID-era advancements
- Cost pressures in the US, including efforts to reduce testing, require strategic focus on efficiency and value delivery
- Uncertainty in investment markets and constrained VC funding pushes large companies to prioritize profitability over growth

"China Demand, navigating uncertainty in demand [over time]."

"Timing of Biotech Demand Recovery – The pace and extent of recovery remain unpredictable."

"Geopolitical Risks / Opportunities – Continued global instability may impact supply chains and market dynamics."

Source: Health Advances year-end executive survey.

What are your top 3 business priorities for 2025?

In 2025, Dx companies will focus on driving commercial excellence, geographic expansion, and new product launches while leveraging R&D and M&A to maximize growth opportunities.

- Emphasis on operational and commercial excellence to maximize market opportunities and drive consistent execution
- Expansion into new and emerging markets, with a strategic focus on APAC and global reach through channel partnerships
- Continuous investment in R&D for innovative product launches, including biomarkers and rapid sequencing technologies
- Prioritization of FDA clearances and reimbursement strategies to enable successful commercialization
- M&A activities to supplement organic growth and expand product portfolios
- Focus on quality improvements and adherence to GMP to enhance operational efficiency
- Account and portfolio expansion through both current technology and new product launches
- Targeted initiatives to capitalize on unique market drivers and idiosyncratic growth opportunities

"Efficiency optimization for product launches, focus on commercial excellence, and geographic expansion."

Source: Health Advances year-end executive survey.

How do you expect the recent US election results to impact the healthcare industry and diagnostics, precision medicine, and/or tools?

2025 US election is poised to drive innovation in Dx and PM through deregulation, funding shifts, and favorable economic conditions, while creating short-term volatility.

- Deregulation and government efficiency efforts are expected to accelerate the approval and adoption of novel therapies, diagnostics, and AI-driven solutions.
- Increased M&A activity driven by lower interest rates and reduced regulatory barriers could reshape the healthcare landscape.
- NIH funding may shift towards emerging talent, driving innovation in PM and diagnostics.
- Supply chain de-risking and potential tariff changes may benefit life sciences tools suppliers while impacting competition.
- Pricing transparency and pharmacoeconomic evaluations will likely pressure high-cost treatments, such as cell and gene therapies.
- Lower interest rates and a flourishing venture capital environment are expected to boost biotech investment
- Short-term market volatility may arise due to uncertainty surrounding regulatory shifts and geopolitical dynamics.

"Increased pressure on drug prices as pricing transparency and cost controls."

"Increased speed to evaluate and approve advanced therapies with government efficiency efforts."

"Lower interest rates supporting more biotech investment."

Source: Health Advances year-end executive survey.

What **innovations in diagnostic instrumentation, technology, and/or clinical content** are you most excited about?

Innovations from AI-driven insights are revolutionizing diagnostics by enhancing precision, efficiency, and accessibility while addressing critical challenges.

- AI is transforming healthcare insights, operational productivity, and R&D efficiency while optimizing costs
- Discovery of new biomarkers and expanded NGS applications are enabling earlier and more effective disease detection
- Remote and POC diagnostics are making healthcare more accessible, user-friendly, and timely
- Innovations focus on addressing silent killers like sepsis and TB and improving late-stage life comfort for aging populations
- Advances in Alzheimer's early detection and ADCs reflect the growing impact of precision medicine
- Improved lab workflows, including hands-free, end-to-end solutions, are streamlining operations
- Rapid and accessible tests are reducing morbidity and mortality by moving diagnostics closer to patients

"Advances in Alzheimer's disease treatment and early detection."

"Application of AI as productivity tools in operations, finance, marketing as well as in R&D."

"Rise of ADCs (antibody-drug conjugates)."

Source: Health Advances year-end executive survey.

What innovations in **life science research and/or bioprocessing tools** and services are you most excited about?

Innovations in AI, CRISPR 2.0, synthetic biology, and high-throughput screening are revolutionizing life science research and bioprocessing.

- AI-powered companion diagnostics and machine learning are driving down drug development costs and improving global access to targeted therapies
- CRISPR 2.0 and synthetic biology are revolutionizing therapeutic innovation and industrial applications
- High-throughput screening is improving efficiency in drug discovery and biological research
- Integration of human cell atlas data is advancing precision and understanding in life sciences research

"AI-powered Companion Diagnostics have transformative potential the types of, and reach of, targeted therapies. We could see a 10x decrease in the cost of bringing a precision therapy to market and a 5-10x improvement in market access, given the cost-effectiveness, performance, and ease of access of digital & computational solutions."

Source: Health Advances year-end executive survey.

- Industry Performance Metrics
- Key 2024 Happenings and 2025 Predictions
- 2025 Thoughts from Our Clients
- ***Our Team***

Our experienced, specialized, technical team rapidly provides critical insights for even the most complex scientific advancements.

Daniela Hristova-Neeley, PhD, MBA
Partner
Joined 2015

Peter Origenes, MS
Vice President
Joined 2019

Chris Karras, MBA
Vice President
Joined 2021

Donna Hochberg, PhD
Partner and Managing Director, Head of Dx, PM, and LST & Services
Joined 2005

Martha O'Neill, MBA
Vice President
Joined 2012

Arushi Agarwal, MS
Partner
Joined 2011

Gary Gustavsen, MS
Partner
Joined 2005

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Senior Director
Joined 2014

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Senior Director
Joined 2017

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Joined 2020

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Joined 2022

Arpit Dave, PhD
Senior Analyst
Joined 2023

Camden Carmichael
Senior Analyst
Joined 2023

Subsector Focus
- Dx
- PM
- LST & Services

The Dx practice is led by experts with broad industry experience and technical expertise.

Donna Hochberg, PhD
Partner and Managing Director, Head of Dx, PM, LST and Services
dhochberg@healthadvances.com

- Donna Hochberg joined Health Advances in 2005 and leads the firm's Diagnostics, Life Science Tools and Services, and Precision Medicine Practice. Her work includes application prioritization, launch strategy, corporate strategy, deal diligence, and international and domestic market analysis using both qualitative and quantitative approaches. Her clients offer products and services in personalized medicine, point-of-care, mainstream clinical diagnostic, and life science tools and range from small diagnostics and tools start-ups to the largest public companies and non-profit institutions in the industry.
- Prior to joining Health Advances, Donna worked as a scientist at One Cell Systems and Iquum developing diagnostics for oncology and infectious diseases. She received her Bachelors degree in Biology from the University of Illinois at Urbana-Champaign and her PhD in Immunology from the Sackler School of Biomedical Sciences at Tufts University.

Peter Origenes, MS
Vice President
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- Peter joined Health Advances in 2019 bringing over 30 years of healthcare experience including corporate executive, principal investor and strategy consulting positions across diagnostics, life science research products, medical devices and biopharmaceuticals. With an integrated view of technology commercialization, medical markets and corporate capability, Peter applies deep experience in advising clients on strategic decisions.
- Prior to joining Health Advances, Peter held executive positions at Becton Dickinson, GE Healthcare and Ortho Clinical Diagnostics. Previously, was a Partner with Radius Ventures, a consultant with The Wilkerson Group and Bain, and held business development, marketing and sales positions with Schering-Plough, Genentech and Roche Laboratories, respectively.
- Peter holds a Master of Science in Industrial Administration from the Tepper School at Carnegie Mellon University, and bachelors' degrees in Genetics and History from the University of California at Berkeley.

Chris Karras, MBA
Vice President
ckarras@healthadvances.com

- Over the past 25 years, Chris has worked closely with leading companies across the diagnostics and biopharma industries on a broad array of issues. He brings diverse insights to help leaders make tough decisions in the face of uncertainty.
- Prior to joining Health Advances, Chris served as a Director in Global Strategic Marketing in the Rapid Diagnostics Division of Abbott.
- Chris's work focuses on strategy development and identifying moves that create sustainable value including deal diligence, portfolio strategy, and supporting upstream strategic marketing decisions.
- Prior to Abbott, Chris spent 15 years in management consulting, primarily with Arthur D. Little's Healthcare and Strategy Practices. Chris also served as a Director in Strategy Development at Pharmacia and was an Equity Analyst at Prudential covering specialty pharmaceuticals. Chris began his career at Abbott with roles in Core Lab Diagnostics (ADD) and Corporate Finance.
- Chris holds a BBA degree from the University of Iowa and an MBA from the Booth School of Business at the University of Chicago.

Martha O'Neill, MBA
Vice President
moneill@healthadvances.com

- Martha joined Health Advances in 2012 and is a leader in the Diagnostics and Digital Health/Health IT practices. She has extensive experience developing growth strategies for and conducting due diligence on innovative products and technologies across neurology, infectious disease, oncology, and women's health. Specific areas of expertise include commercialization strategy, opportunity assessment, portfolio prioritization, due diligence, and forecasting.
- Apart from her time at Health Advances, Martha worked in the Office of the CEO at Foundation Medicine and has supported startups in the drug discovery and virtual care spaces with business development and commercialization strategy.
- Martha earned an MBA from the Tuck School of Business at Dartmouth where she was a Tuck Scholar and a BA in Engineering Sciences and Biology, magna cum laude, from Dartmouth College.

Similar, our precision medicine and LST & Services leadership team brings years of expertise and deep industry knowledge.

Gary Gustavsen
Partner
ggustavsen@healthadvances.com

- Gary Gustavsen came to Health Advances in 2005 and leads the Personalized Medicine Practice at Health Advances. His work focuses on commercialization strategy, indication prioritization, pricing and reimbursement strategy, system economics, and business development opportunities for both diagnostic and therapeutic clients.
- Prior to joining Health Advances, Gary was a researcher at Brookhaven National Lab evaluating a proprietary line of synthetic growth factors. Gary also worked in the Cell & Tissue Technologies group at Becton Dickinson, the Exploratory Cancer Research group at OSI Pharmaceuticals, and most recently the Corporate Strategy group at Millennium Pharmaceuticals. Gary received his Bachelors degree in Biomedical Engineering from Duke University and his Masters degree in Biomedical Engineering from Stony Brook University.

Arushi Agarwal
Partner
aagarwal@healthadvances.com

- Arushi Agarwal joined the Health Advances team in 2011 and spends the majority of her time working in the Diagnostics and Life Sciences Practice. She has expertise in M&A due diligence and global commercialization strategies for diagnostics. Arushi's specific areas of focus include companion diagnostics, point-of-care diagnostics and liquid biopsy testing.
- Prior to joining Health Advances, Arushi received her Masters in Biomedical Engineering from Columbia University and Bachelors in Biology from the Massachusetts Institute of Technology.

Daniela Hristova-Neeley, PhD
Partner
dhristova-neeley@healthadvances.com

- Daniela is a co-leader of the life science tools and services practice. She has extensive experience in global commercialization strategy, market access, business model evaluation, and commercial due diligence across life sciences products and biopharma services. Daniela's diverse experience in the life sciences tools and pharma services space provide a strong base to help generate actionable growth strategies for clients.
- Prior to joining Health Advances, Daniela helped clients in the healthcare industry optimize their value proposition and global market access strategies to enable product adoption.
- Daniela earned her PhD in Chemistry, summa cum laude, from the University of Basel, Switzerland and her MBA from Johnson Graduate School of Management at Cornell University.

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