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Diagnostic Deals: A roundup of the key mergers, acquisitions, alliances, licenses and other strategic transactions from the past month

The strategic deal making pot continues to boil, despite the relative inactivity of the established market leaders like Quest, LabCorp and Abbott. Here's a look at the trends and major deals from late June to late July.

Mergers & Acquisitions and Asset Sales

The biggest M&A deal of the period was Agilent Technologies' agreement to acquire BioTek Instruments for \$1.17 billion in cash. Expected to close in the fourth quarter, the deal will

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Upcoming Events

Lab Institute 2019

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in 2019

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HHS & DOJ Report: Investment returns on the federal enforcement dollar continue to drop

The business of enforcing federal health care fraud laws isn't as robust as it used to be. While revenues have remained pretty steady, return on investment (ROI) has been trending downward, providing the investment returns of yesteryears.

ROI Keeps Trending Down

That's one of the main takeaways of the new joint HHS and DOJ [report](#) on the financial performance of the Health Care Fraud and Abuse Control Program (Program) during fiscal year 2018. Continuing recent trends, ROI for FY 2018 for the three-year period 2016-2018 dipped to \$4.00 for every dollar spent, as compared to \$4.20 in FY 2017. That's the sixth annual decline in a row since Program ROI peaked at \$8.10 in FY 2013.

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■ Diagnostic Deals, from page 1

expand Agilent's position in the cell analysis market which the firm first entered in 2015 by acquiring Seahorse Bioscience. Coupled with last year's acquisitions of Luxcel Biosciences and ACEA Biosciences, the BioTek deal is expected to boost Agilent's annual cell analysis revenues above \$250 million, according to company sources. "By combining BioTek's offerings with Agilent's, we will deliver a breadth of differentiated workflows, enabling customers to obtain deeper, more reliable insights across a variety of cell analysis applications," noted Jacob Thaysen, president of Agilent's life sciences and applied markets group, in a statement.

In addition to the deals summarized in the chart below, Evotec, a publicly traded global drug discovery and development company based in Hamburg announced that it has acquired intellectual property related to iPSC-based phenotypic drug discovery and an existing iPSC-derived cells products business from Ncardia, a privately held stem cell drug and discovery company with offices in Belgium, the Netherlands and US. As part of the acquisition, Evotec is also taking on 17 stem cell biology experts who have expertise in generating multiple disease-relevant cell types from iPSCs and applying them in drug discovery.

In announcing the deal, Evotec said that combining these assets and knowledge with its own iPSC expertise and drug-discovery platforms will create new biological research opportunities and enhance new and existing partnerships. "Additional expertise and capacity in the iPSC space as well as a substantial partner network will allow us to further accelerate our efforts to build a world-leading iPSC translational biology platform across different disease areas," said Cord Dohrmann, CSO of Evotec.

Strategic Alliances

Companies making strategic alliance news this busy month include 23andMe, Thermo Fisher Scientific, Illumina and Precipio. Helomics, a division of Predictive Oncology, was especially busy, announcing three new partnerships.

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Here's a summary of key diagnostic deals announced from late June through the third week of July:

MERGERS, ACQUISITIONS & ASSET SALES

AQUIRING COMPANY	TARGET(S)	DEAL SUMMARY
Agilent Technologies	BioTek Instruments	<ul style="list-style-type: none"> • Price: \$1.17 billion cash • Status: Expected to close in Q4 • Agilent to acquire producer of instruments for the life science industry, including cell imaging systems, microplate readers, washers, dispensers, automated incubators, stackers and other life science instruments with \$162 million in 2018 revenues
PHC Holdings	Thermo Fisher Scientific	<ul style="list-style-type: none"> • Price: \$1.14 billion cash • Status: Closed June 28 • Thermo Fisher sells off its Anatomical Pathology business with 1,200 worldwide employees and roughly \$350 million in annual revenues
Invitae	Singular Bio	<ul style="list-style-type: none"> • Price: \$55 million—approximately 2.5 million shares of Invitae common stock + \$5.7 million in cash • Status: Closed • Singular employees that stay with company to get up to \$90 million in Invitae contingent stock awards • Acquisition of firm specializing in single-molecule, cell-free DNA analysis for non-invasive prenatal testing advances Invitae's strategy to push into NIPT space
Invitae	Jungla	<ul style="list-style-type: none"> • Price: \$50 million—\$15 million cash + \$35 million common stock • Status: Closed • Acquisition of AI-driven biotech firm and developer of cloud-based Functional Modeling Platform boosts Invitae's variant interpretation capabilities
Interpace Diagnostics	Cancer Genetics	<ul style="list-style-type: none"> • Price: \$23.5 million—\$13.8 million cash + \$7.7 million note at 6% interest • Status: Closed • Interpace acquires biopharma services of Cancer Genetics with 2018 net revenues of \$15 million
siParadigm	Cancer Genetics	<ul style="list-style-type: none"> • Price: \$1 million cash + earn-out to be determined based on testing volume over the next year • Status: Closed • siParadigm acquires clinical lab business of Cancer Genetics
Precision IBD	Prometheus Laboratories (US-sub of Nestlé Health Science)	<ul style="list-style-type: none"> • Price: Undisclosed • Status: Closed • Nestlé divests developer of pharmaceutical and diagnostic products with focus on gastrointestinal diseases • Exception: Nestlé to continue operating POC diagnostic business under the new name Procise Dx • Precision IBD to lay off 72 of Prometheus' 280 employees
ArchiMed	EuroLyser	<ul style="list-style-type: none"> • Price: Undisclosed • Status: Closed • ArchiMed also acquires EuroLab, main distributor of EuroLyser's POC products
Quanterix	UmanDiagnostics	<ul style="list-style-type: none"> • Price: \$22.5 million—\$16 million cash + \$6.5 million Quanterix common stock • Status: No closing date announced • Quanterix acquires supplier of neurofilament light antibodies and ELISA kits to advance development of therapeutics and diagnostics for neurodegenerative conditions

Continued on page 4

■ Diagnostic Deals, from page 3

MERGERS, ACQUISITIONS & ASSET SALES

AQUIRING COMPANY	TARGET(S)	DEAL SUMMARY
Eurofins Scientific	Transplant Genomics (TGI)	<ul style="list-style-type: none"> Price: Undisclosed Status: Closed Eurofins acquires developer of molecular diagnostics for management of organ transplant patients including TruGraf DNA microarray test
Biodesix	Oncimmune	<ul style="list-style-type: none"> Price: Undisclosed Status: Agreement to acquire with no closing date announced Biodesix acquire rights to Oncimmune's EarlyCDT Lung in US as well as latter's US operations including Kansas-based CLIA lab which is sole US provider of test
Abbott	GLP Systems	<ul style="list-style-type: none"> Price: \$50 million + up to \$70 million more in contingent milestone payments Status: Closed Abbot acquires 100% of Australian lab services, pathology and radiology services provider, including 85% stake previously held by Sonic Healthcare Sonic is and will remain client of GLP
Abcam	EdiGene	<ul style="list-style-type: none"> Price: Undisclosed Status: Closed Abcam to use EdiGene's live cell line and lysates products to support further knockout antibody validation as a part of its ongoing antibody quality initiative

STRATEGIC ALLIANCES, PARTNERSHIPS & COLLABORATIONS

PARTNER 1	PARTNERS (2+)	DEAL SUMMARY
23andMe	Alnylam Pharmaceuticals	<ul style="list-style-type: none"> Objective: Provide free genetic test kits to first-degree family members of 23andMe customers who have TTR variant that causes hereditary amyloidosis Dynamic: 23andMe customers with TTR variants who opt to partake in research can invite up to six first-degree relatives to get a free health and ancestry kit and those relatives will decide if they want to see the TTR variant report
Thermo Fisher Scientific	Biodesix	<ul style="list-style-type: none"> Objective: Develop sequencing-based lung cancer liquid biopsy diagnostic test Dynamic: Biodesix to generate analytical and clinical data using Thermo Fisher's Ion Torrent OncoPrint Pan-Cancer Cell-Free Assay to apply for FDA premarket approval (PMA) After approval, Biodesix will have a single-site PMA for NGS-based liquid biopsy test covering actionable markers in cancer for use in NGS-based biomarker discovery, validation studies and companion diagnostic commercialization
Chembio Diagnostics	Takeda Pharmaceutical (via Shire Human Genetic Therapies subsidiary)	<ul style="list-style-type: none"> Objective: Develop quantitative POC diagnostic test to detect undisclosed biomarker Dynamic: Test to leverage Chembio's Dual-Path Platform chromatographic immunoassay and hand-held optical analyzer
Fulgent Genetics	Parkinson's Foundation	<ul style="list-style-type: none"> Objective: Provide genetic testing and counseling for individuals with Parkinson's-related genes Dynamic: PD GENERation: Mapping the Future of Parkinson's disease initiative to use customized version of Fulgent's Parkinson's disease NGS panel to target seven genes linked to Parkinson's with Fulgent to analyze results Indiana University School of Medicine, University of Florida CTSI Data Coordinating Center and the University of Rochester's Clinical Trials Coordination Center to help by providing genetic counseling and secure data storage

STRATEGIC ALLIANCES, PARTNERSHIPS & COLLABORATIONS

PARTNER 1	PARTNERS (2+)	DEAL SUMMARY
NanoString Technologies	MODEL-AD consortium	<ul style="list-style-type: none"> Objective: Develop two nCounter gene expression panels for use in Alzheimer's disease research Dynamic: Panels will measure expression of 770 genes covering 30 modules discovered in a recent study of human brain tissue for use in human and mouse studies
ArcherDX	Ayala Pharmaceuticals	<ul style="list-style-type: none"> Objective: Develop companion diagnostics for new cancer drugs Ayala is developing Dynamic: ArcherDX to provide companion diagnostic solutions to determine if cancer patients with Notch-activating genetic mutations and fusions will respond to the drugs
Helomics (subsidiary of Predictive Oncology)	Interpace Diagnostics	<ul style="list-style-type: none"> Objective: Develop products to diagnose and assess thyroid cancer risk Dynamic: Integrating Interpace's ThyGeNEXT and ThyraMir assays with Helomics' D-CHIP (Dynamic Clinical Health Insights Platform) Helomics to use Interpace's clinical data to build model to find druggable targets for aggressive and indolent thyroid cancer treatment
Helomics	University of Pittsburgh Medical Center	<ul style="list-style-type: none"> Objective: Leverage AI to improve clinical decision making for ovarian cancer patients Dynamic: Use Helomics' AI-based D-CHIP tool to analyze genomic and drug response profiles of ovarian cancer patients to identify value in predicting response to therapy
Helomics	ChemImage	<ul style="list-style-type: none"> Objective: Develop technology to monitor prostate cancer response to treatment Dynamic: ChemImage to provide Helomics human prostate biopsy and prostatectomy tissue samples for sequencing Helomics to integrate sequence results and existing Raman spectroscopy data on samples into its D-CHIP AI knowledgebase to build predictive model of prostate cancer drug response
PreventionGenetics	Rhythm Pharmaceuticals	<ul style="list-style-type: none"> Objective: Offer free testing for rare genetic obesity disorders to boost development of Rhythm's setmelanotide drug Dynamic: Rhythm's Uncovering Rare Obesity program to offer free genetic testing through PreventionGenetics to individuals with early-onset severe obesity and insatiable hunger to help determine if conditions have genetic basis
XVivo Perfusion	MyCartis	<ul style="list-style-type: none"> Objective: Develop diagnostic tool to assess quality of donated organs during ex vivo perfusion Dynamic: Expand MyCartis' real-time Evaluation analysis platform to enable users to quantify organ damage next to the degree of inflammation
PathogenDx	Nationwide Laboratory Services	<ul style="list-style-type: none"> Objective: Create laboratory developed test for fungal testing of dermatology and podiatry samples Dynamic: Use PathogenDx testing technology to create multiplex fungal assay that can identify up to 44 different pathogens at a time
Celsius Therapeutics	Janssen Biotech	<ul style="list-style-type: none"> Objective: Identify drug response biomarkers for an investigational ulcerative colitis drug combination Dynamic: Use Celsius technologies to identify predictive biomarkers of response in a Phase IIa study evaluating a cocktail of Janssen's guselkumab (Tremfya) and golimumab (Simponi) drugs Celsius to get undisclosed payments, including milestones tied to use of biomarkers and retain right to include clinical and sample-level data from study in its patient and single-cell genomics database

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STRATEGIC ALLIANCES, PARTNERSHIPS & COLLABORATIONS

PARTNER 1	PARTNERS (2+)	DEAL SUMMARY
Inspirata	Indema	<ul style="list-style-type: none"> Objective: Improve integration of information technology systems in university hospitals in Europe Dynamic: Form new entity called Inspirata Europe that combines Inspirata's digital pathology capabilities and oncology informatics with Indema's IT assessment, project design and program management capabilities
Tabula Rasa HealthCare	CQuentia	<ul style="list-style-type: none"> Objective: Offer pharmacogenomics services and biometric wearables Dynamic: Use Tabula Rasa MedWise technology for electronic delivery of PGx test results to ordering physicians CQuentia to be Tabula Rasa's preferred PGx lab partner
Oncimmune	R-Pharm	<ul style="list-style-type: none"> Objective: Commercialize Oncimmune EarlyCDT Lung test in Russia, Belarus, Kazakhstan, Armenia and Kyrgyzstan Dynamic: 5-year exclusive commercial partnership expected to generate at least £5 million (\$6.2 million), including £2.75 million in milestone payments, in which R-Pharm will register test in Russia and be responsible for all sales and marketing costs in all geographic areas of deal R-Pharm to invest up to £3.5 million to create a screening program using EarlyCDT Lung in Moscow and eventually across Russia
Illumina	AnchorDx	<ul style="list-style-type: none"> Objective: Develop clinical oncology tests for China market Dynamic: Southern China-based AnchorDx to use Illumina MiSeqDx sequencing system to develop cancer test kits and data analysis software Looking to create first cancer screening IVD product in China on MiSeqDx system
Integrated DNA Technologies (part of Danaher)	ChosenMed	<ul style="list-style-type: none"> Objective: Develop large pan-cancer gene panels as part of Cancer Genome Atlas of China (CGAC) project Dynamic: IDT to provide NGS enrichment products for cancer sequencing to Beijing-based ChosenMed for R&D enhancement
Precipio	H3 Biomedicine	<ul style="list-style-type: none"> Objective: Develop multiplexed PCR assays for FGFR3, PIK3CA, HRAS, TERT, and PLEKHS1 Dynamic: Second development project between parties with Precipio to also develop 9 amplicons within genes of interest and focus on amplification and multiplexing of the mutations of interest
BGI Genomics	Eluthia	<ul style="list-style-type: none"> Objective: Develop reproductive genetic tests for German market Dynamic: Eluthia to offer BGI's noninvasive prenatal NIFTY test in Germany under the brand name PreviaTest with patient samples to be analyzed in BGI Genomics laboratories outside Germany
CancerIQ	Gene Matters	<ul style="list-style-type: none"> Objective: Integrated technologies to give care providers easier access to counselors for patients at high risk for cancer Dynamic: Use CancerIQ platform to identify high-risk patients and enable providers to use same platform to schedule telehealth visits with GeneMatters counselors with GeneMatters sending back summary report of visit via CancerIQ portal
Progenity	NYU Winthrop Hospital	<ul style="list-style-type: none"> Objective: Develop biomarker panel for predicting preterm birth Dynamic: NYU Winthrop to grant Progenity exclusive license to 2 of its patents

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STRATEGIC ALLIANCES, PARTNERSHIPS & COLLABORATIONS

PARTNER 1	PARTNERS (2+)	DEAL SUMMARY
PerkinElmer	FDNA	<ul style="list-style-type: none"> Objective: Offer FDNA's genetic testing technologies, including Face2Gene software through PerkinElmer lab network Dynamic: PerkinElmer to integrate FDNA's genetic testing technology into its lab ordering and variant analysis workflows as a package called Face2Gene Labs Three-year project with phase 1 to focus on identifying VOCs in breath of people diagnosed with malignant mesothelioma, and phase 2 to launch a blind study to verify the sensitivity, specificity and positive and negative predictive values of selected VOC biomarkers identified in phase 1
Loxo Oncology	AmoyDiagnostics + Premia Holdings	<ul style="list-style-type: none"> Objective: Genetic screening of patients to support development of Loxo's targeted cancer therapy Dynamic: AmoyDx and Premia to provide large-scale cancer patient screening in Asia to support Loxo-292 RET inhibitor clinical development using AmoyDx's multigene PCR and NGS panels to identify patients with RET genetic alteration
SpeedX	GlaxoSmithKline	<ul style="list-style-type: none"> Objective: Drug development Dynamic: SpeedX to provide GSK with a combination of existing and custom-developed molecular diagnostic tests to support its antibiotic clinical trials and new product development efforts
Sciex	EluciData	<ul style="list-style-type: none"> Objective: Comarket respective products Dynamic: Sciex to promote EluciData's Polly multi-omics platform in conjunction with its TripleTOF, X500R QTOF and QTRAP instruments and its Differential Ion Mobility technologies
MGI Tech	Centre for Translational Microbiome Research at Sweden's Karolinska Institutet	<ul style="list-style-type: none"> Objective: Study role of the microbiome in human health Dynamic: 10,000 Metagenomics Project under which partners will use MGI Tech's DNBseq sequencing technology to generate shotgun metagenomics data from an existing microbiome biobank yielding insight into relationship between the microbiome, normal physiology and disease

DISTRIBUTION, SALES & MARKETING AGREEMENTS

PROPERTY OWNER	DISTRIBUTOR	DEAL SUMMARY
Inivata	IPS Genomix	<ul style="list-style-type: none"> Products: Inivata's InVisionFirst-Lung and InVisionSeq liquid biopsy tests Territory: UAE, Qatar, Kuwait, Bahrain, Lebanon, Jordan, Egypt, Saudi Arabia
Oncimmune	Vithas Group	<ul style="list-style-type: none"> Products: Oncimmune's EarlyCDT Lung cancer assay Territory: Spain
The Native Antigen Company	Biozol	<ul style="list-style-type: none"> Products: Native Antigen's line of native and recombinant viral and bacterial antigens, antibodies and immunoassays Territory: Germany, Switzerland, Austria
The Native Antigen Company	Shanghai Bioleaf	<ul style="list-style-type: none"> Products: Native Antigen's line of native and recombinant viral and bacterial antigens, antibodies and immunoassays Territory: China
Mission Bio	Novogene	<ul style="list-style-type: none"> Products: Mission Bio's Tapestry Platform Territory: China
Arcis Biotechnology	Opentrons	<ul style="list-style-type: none"> Products: Arcis' nucleic acid sample prep products Territory: Worldwide

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■ Diagnostic Deals, from page 7

DISTRIBUTION, SALES & MARKETING AGREEMENTS

PROPERTY OWNER	DISTRIBUTOR	DEAL SUMMARY
Seventh Sense Biosystems	Miraca	<ul style="list-style-type: none"> • Products: Tap, Seventh Sense's push-button device that uses a microneedle array to collect capillary blood from the arm • Territory: Japan • Miraca also gets undisclosed equity stake in Seventh Sense
RevoluGen	Merck KGaA	<ul style="list-style-type: none"> • Products: RevoluGen's DNA extraction and size selection product • Territory: Worldwide • Non-exclusive
Mobidiag	Pro Med Diagnostics	<ul style="list-style-type: none"> • Products: Mobidiag's Amplidiag and Novodiag products • Territory: South Africa, Namibia, Botswana, Zimbabwe, Swaziland, Lesotho, Malawi, Kenya, Uganda • Exclusive
PlexBio	A. Menarini Diagnostics	<ul style="list-style-type: none"> • Products: PlexBio's IntelliPlex system • Territory: Western Europe, Middle East, Australia • Exclusive
Qiagen	McKesson Medical-Surgical	<ul style="list-style-type: none"> • Products: Qiagen's QiaStat-Dx syndromic testing platform • McKesson exclusive distributor in the "acute" market segment of US hospitals with 200 or fewer beds • McKesson also non-exclusive distributor for QiaStat-Dx's future expansion into clinics located in US retail pharmacies

LICENSES

Licensor	Licensee	Deal Summary
The Broad Institute	MilliporeSigma	<ul style="list-style-type: none"> • New licensing framework covering CRISPR genome editing intellectual property under each side's respective control • Broad to now offer licenses to its own and MilliporeSigma's CRISPR IP portfolio to potential licensees for internal research uses and commercial research tools and kits • MilliporeSigma's IP for CRISPR technology now available royalty-free to non-profit academic institutions, non-profit business communities and governmental agencies for internal research
Arcis Biotechnology	Mirna Biosens	<ul style="list-style-type: none"> • Property: Arcis' nucleic acid sample preparation and preservation technology • Mirna to use technology to improve stability of miRNA biomarkers for early disease detection • Firms to also work together to develop a microfluidic device that integrates their respective technologies
CytoDyn	IncellDx	<ul style="list-style-type: none"> • Property: CytoDyn's humanized antibody-based cancer and HIV drug leronlimab • CytoDyn to license and supply noncommercial grade leronlimab, along with the murine version of the antibody, to IncellDx for use in assays to determine the presence of CCR5 on cancer tissue and receptor occupancy level for HIV patients

SUPPLY, SERVICE & TESTING AGREEMENTS

Supplier/Service	Client/User	Deal Summary
Quest Diagnostics	Catholic Health Services of Long Island	Quest to provide lab management services and reference testing to six CHS hospitals, a core lab, a cancer center and an infusion center

NEW CLINICAL STUDIES

DX Partner	Other Partner(s)	Description of Study
Inivata	France's Centre Léon Bérard	Test whether Inivata's InVisionFirst-Lung test can get patients on appropriate treatment more quickly than tissue-based genetic testing

The DX Pipeline: A roundup of the month's key new product launches

A team led by Johns Hopkins Kimmel Cancer Center announced that it has developed a new test capable of determining whether patients with pancreatic cysts do or do not need surgery or further surveillance. The CompCyst test uses imaging and molecular data to classify pancreatic cysts into three groups:

- Cysts with no potential to become cancerous;
- Cysts with a small risk of becoming cancerous; and
- Cysts with a high risk of becoming cancerous.

The team is looking to do a 1,000-patient clinical study of the test in the hopes of securing FDA approval to bring it to the commercial market.

Here's a summary of the key launches that did take place from mid-June to the third week of July, 2019:

NEWLY LAUNCHED PRODUCTS & SERVICES

Company(ies)	Product(s)/Service(s)
Abbott	Afinion HbA1c Dx assay for use on both the Afinion 2 Analyzer and Afinion AS100 Analyzer
Roche	Ventanna ROS1 (SP384) Rabbit Monoclonal Primary Antibody, which company claims is first in vitro diagnostic immunohistochemistry (IHC) tests for detecting ROS1 protein in cancers

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■ The DX Pipeline, from page 9

NEWLY LAUNCHED PRODUCTS & SERVICES

Company(ies)	Product(s)/Service(s)
HTG Molecular Diagnostics	Updated version of HTG EdgeSeq Reveal data analytics software
Co-Diagnostics	Vector Smart NAM test to identify presence of West Nile virus, St. Louis encephalitis and western equine encephalitis in mosquito populations
Circulomics	Two new versions of its Short Read Eliminator kit for the depletion of short DNA fragments from high molecular weight DNA samples
Biotechne	Multiplex in situ hybridization RNAscope HiPlex Assay for tissues
ZeptoMetrix	NATrol Respiratory Verification Panel, a 20-member respiratory panel for molecular testing for infectious disease
Cellecta	Dual-sgRNA libraries designed for CRISPR activation (CRISPRa) and CRISPR interference/repression (CRISPRi) genetic screens
23andMe	New genetic health risk report for MUTYH-Associated Polyposis (MAP)
BillionToOne	Unity prenatal screening assay
AutoGen	Xtract 16+ system to extract DNA or RNA from molecular diagnostic, biological, clinical and forensic sample types
Thermo Fisher Scientific	Four versions of Invitrogen Collibri DNA Library Prep kits for use with high-throughput Illumina sequencing systems
Porvair Sciences	ChIP kit range dedicated to Drosophila
Expedeon	Lightning-Link Metal Labeling Kits for immunoassay-based applications to support single cell analysis
GenScript	Upgrade to its GenBrick Gene Synthesis platform
Phitonex	New line of NovaFluor dyes
Phase Genomics	New ProxiMeta platform, which includes 8-pack ProxiMeta kit with cloud-based ProxiMeta Analysis

NEWLY LAUNCHED PRODUCTS & SERVICES

Company(ies)	Product(s)/Service(s)
Fluidigm	Three Imaging Mass Cytometry Maxpar panel kits are for immune-oncology research
Fluidigm	New CyTOF software for use with the Hyperion Imaging System for cellular biomarker identification
Fluidigm	Seven new cadmium metal labeling kits for mass cytometry
Cytek Biosciences	New version of its Cytek Aurora flow cytometry system
BGI	676 Quality Genome for high de novo genome assembly using MGI's DNBSEQ and stLFR technologies
Biocept	Target Selector NGS Breast Panel to detect and monitor genomic biomarkers associated with breast cancer run on Thermo Fisher Scientific's Ion Torrent NGS platform
Qiagen	Microbial Insights AR (QMI-AR) integrated genomic database
GeneCast	Research-use-only kits for BRAF, EGFR and JAK2 mutation detection

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■ HHS & DOJ Report, from page 1

Annual Program ROI, FY 2013 to FY 2018

FY 2013	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018
\$8.10	\$7.70	\$6.10	\$5.00	\$4.20	\$4.00

“Because the annual ROI can vary from year to year depending on the number and type of cases that are settled or adjudicated during that year, DOJ and HHS use a three-year rolling average ROI for results contained in the report,” the agencies explain in their report. But while rolling averages may take off some of the edge for a particular year, they can’t conceal the long-term trend. Simply put, the return on enforcement dollars is only about 50% of what it used to be just six years ago.

By The Numbers

Total recoveries from health care fraud judgements and settlements topped \$2.3 billion in FY 2018, slightly down from the previous year. The chart below summarizes the key year-to-year findings.

Metric	FY 2018	FY 2017
Total recoveries	\$2.3 billion	\$2.4 billion
New DOJ criminal health care fraud investigations	1,139	967
New DOJ civil health care fraud investigations	918	948
New criminal cases filed	572	439
Convictions	872	639
Criminal actions resulting from OIG investigations	679	788
Exclusions issued by OIG	2,712	3,244

While these accomplishments are noteworthy, they come at a higher price than in recent years.

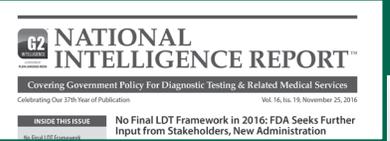


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