

# Diagnostics dealmaking in the past year

Diagnostics for applications in oncology—particularly immuno-oncology—continued to be the most common focus of dealmaking in the past 12 months, while deals related to Alzheimer's disease and infectious disease threats such as Zika virus infection were also prominent.

## BioPharma Dealmakers

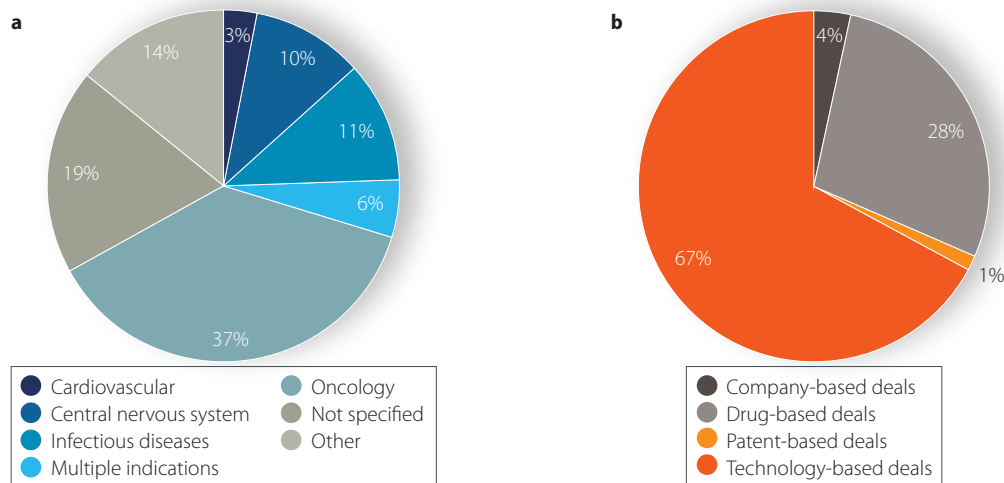
In the past 12 months, over 450 deals involving diagnostics were signed, based on analysis of data in the Cortellis database from Clarivate Analytics. Breaking these deals down according to the therapeutic area where possible (Fig. 1a), the most common defined applications were in oncology—an area in which a lot of work is being focused on identifying biomarkers, particularly those involved in the immune response that could support immuno-oncology therapies. Such therapies have already had a major impact on the treatment of several cancers, but despite this success, typically a substantial proportion of patients do not respond to treatment, and so there is considerable interest in approaches that could identify biomarkers of treatment response. For example, NanoString Technologies and HaliDx entered into a collaboration to develop and commercialize gene expression assays for immuno-oncology applications in April 2016. Shortly before this, NanoString Technologies also began a collaboration with Merck and Co. to develop and commercialize a novel diagnostic assay to predict response to Merck's immune checkpoint inhibitor Keytruda (pembrolizumab).

The second-highest number of diagnostic deals with a defined therapeutic area were for infectious disease applications. Among

these deals, those related to viral infections—particularly Zika virus—and *Clostridium difficile* infection were prominent—the focus of six deals and eight deals, respectively. For example, the US government provided funding to several developers of diagnostics for Zika virus infection, including Clinical Research Management, Hologic, InBios International, OraSure and DiaSorin.

Diseases of the central nervous system were the third most prominent focus. One of the leading categories in this segment was Alzheimer's disease, with 13 deals signed, reflecting the key need to identify patients earlier in the course of the disease to increase the likelihood that disease-modifying therapeutics could have an impact. A frequent focus of such deals was tracers for positron emitting tomography (PET) imaging, which can be used to monitor the levels of pathogenic amyloid plaques in the brain.

A breakdown of the type of deals being signed is shown in Fig. 1b. We also reviewed the deals for which a value was disclosed (Table 1). The top deal in this category was Grifols' acquisition of the nucleic-acid-testing donor-screening unit from Hologic for transplantation and transfusion screening for \$1,850 million. The second-highest deal was another acquisition, of specialty pharma company Mallinckrodt's nuclear imaging business by IBA Molecular. The deal includes an up-front payment of \$574 million and a line of diagnostics products.



**Figure 1: Diagnostic deals in the past year.** A total of 457 diagnostic method deals were collected for the period March 2016–March 2017 from the Clarivate Analytics Cortellis database. Diagnostic methods covers deals such as those involving assays, biomarkers, genomics, imaging, instruments, medical devices, screening and radiolabelling. **(a)** Deals broadly categorized by therapy area (where possible). **(b)** Deals categorized by deal type, using the four top-level categories company, drug, patent and technology.

**Table 1: Selected major diagnostic deals by value in the past 12 months**

Principal company	Partner company	Date	Therapeutic area	Summary	Deal value (millions)
Grifols	Hologic	December 2016	Transplantation	Grifols acquires Hologic's share of the nucleic acid testing donor-screening unit. The agreement was finalized in January 2017 and also includes a plant in San Diego.	\$1,850
IBA Molecular	Mallinckrodt	August 2016	NS	IBA Molecular acquires Mallinckrodt's nuclear imaging business. The transaction closed in January 2017 and includes two manufacturing facilities.	\$690
Cardinal Health	Navidea Biopharmaceuticals	September 2016	Oncology	Navidea's radioactive imaging agent Lymphoseek is purchased by Cardinal Health for oncology diagnostic indications.	\$310
DiaSorin	Quest Diagnostics	March 2016	NS	Quest Diagnostics sells the assets of its Focus Diagnostics' molecular and immunoassay product business to DiaSorin.	\$300
Varian Medical Systems	PerkinElmer	December 2016	NS	Varian Medical Systems signs deal to acquire the medical imaging business (including flat-panel X-ray detectors) from PerkinElmer.	\$276
US Department of Health and Human Services	DxTery Diagnostics	October 2016	Radiation sickness	DxTery Diagnostics has been awarded a contract from BARDA to further develop the REDI-Dx high-throughput radiation biodosimetry test.	\$150
Nestle Health Science	DBV Technologies	May 2016	Allergy	Nestle Health Science signed a partnership with DBV Technologies to develop an atopy patch test to diagnose allergy to cow's milk protein in children. Nestle Health Science will pay an upfront payment of EUR10 million and have exclusive rights to commercialize the test.	\$110
US Department of Health and Human Services	MRIGlobal	October 2016	Radiation sickness	BARDA granted MRIGlobal a contract to develop the ARad biodosimetry test, with partners Arizona State University and Thermo Fisher Scientific.	\$100
Yantai Dongcheng Biochemicals	Beijing Global Medical Solutions Medicine Corporation	March 2016	NS	Yantai Dongcheng Biochemicals acquired the China-based assets of Global Medical Solutions.	\$70
Celgene	Abramson Cancer Center of the University of Pennsylvania	June 2016	Oncology	Celgene, in partnership with the research consortium (including Abramson Cancer Center of the University of Pennsylvania, the Herbert Irving Comprehensive Cancer Center, Sidney Kimmel Comprehensive Cancer Center and Mount Sinai Medical Center), signs collaboration agreement to develop therapeutics and diagnostics.	\$50

Source: Clarivate Analytics Cortellis database. BARDA, Biomedical Advanced Research and Development Authority; NS, not specified.