Biotech M&A Review March 2019
The following report details mergers and acquisitions activity in the biotech sector in March 2019 using data from the Zephyr database.

It focuses on global deals activity by target company within the biotech sector.

Click here to access the raw data in an Excel spreadsheet.

Biotech M&A Review
1: PE, VC and DC

Biotech PE, VC and DC value and volume at new 12-month low

The volume and value of private equity, venture capital and development capital (PE, VC and DC) investment targeting the biotech sector in March represented a new 12-month low as dealmaking fell to 43 deals worth USD 485 million from 47 deals aggregating at USD 633 million in February.

Volume was down for the third consecutive month and value, after declining for the second month in a row, was half the USD 1,058 million-worth of biotech deals announced in March 2018.

The overall decline can largely be attributed to the lack of high-value deals announced in March, as only one PE, VC and DC investment targeting the biotech sector exceeded USD 100 million.

Private equity, venture capital and development capital deals by volume and value

<table>
<thead>
<tr>
<th>Announced date</th>
<th>No of deals</th>
<th>Total deal value (mil USD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mar-19</td>
<td>43</td>
<td>485</td>
</tr>
<tr>
<td>Feb-19</td>
<td>47</td>
<td>633</td>
</tr>
<tr>
<td>Jan-19</td>
<td>52</td>
<td>1,292</td>
</tr>
<tr>
<td>Dec-18</td>
<td>56</td>
<td>1,087</td>
</tr>
<tr>
<td>Nov-18</td>
<td>50</td>
<td>918</td>
</tr>
<tr>
<td>Oct-18</td>
<td>51</td>
<td>492</td>
</tr>
<tr>
<td>Sep-18</td>
<td>44</td>
<td>717</td>
</tr>
<tr>
<td>Aug-18</td>
<td>64</td>
<td>1,482</td>
</tr>
<tr>
<td>Jul-18</td>
<td>44</td>
<td>494</td>
</tr>
<tr>
<td>Jun-18</td>
<td>55</td>
<td>947</td>
</tr>
<tr>
<td>May-18</td>
<td>72</td>
<td>1,027</td>
</tr>
<tr>
<td>Apr-18</td>
<td>46</td>
<td>608</td>
</tr>
<tr>
<td>Mar-18</td>
<td>58</td>
<td>1,058</td>
</tr>
</tbody>
</table>
Private equity, venture capital and development capital deals by volume and value

![Bar chart showing the number of deals and total deal value over time.](chart.png)
Only one PE, VC and DC deal exceeded USD 100mn in March

The largest deal targeting a biotech company in March involved Beam Therapeutics, a US developer of precision genetic medicines through the use of CRISPR base editing, completing a series B round of funding worth USD 135 million. Participants included new investors Redmile Group, Cormorant Asset Management, GV, Altitude Life Science Ventures, and additional undisclosed investors, and continued support by F-Prime Capital, ARCH Venture Partners, Eight Roads Ventures, and Omega Fund Management.

This was the only PE, VC and DC investment announced in March worth more than USD 100 million and one of 16 in the top 20 by value that targeted a biotech company based in the US.

One UK-based biotech company and three Chinese targets featured in the month’s top 20. Invivata of the UK accounted for the third-largest deal of the month as the Cambridge-based clinical cancer bio-genomic products researcher and developer completed a series B round of funding worth USD 53 million. Participants included Woodford Asset Management, IP Group, Cambridge Innovation Capital, Johnson & Johnson Innovation – JJDC and RT Ventures. The Chinese companies that were targeted in the top biotech deals by value included Abbisko Therapeutics, Jiangsu Yaohai Biological Pharmaceutical and Yantai Heyuan Aidisi Biomedical Technology.

US ranked top by both volume and value

The US was the top target country of PE, VC and DC investment by volume and value with 32 deals worth USD 365 million in March. While volume was unchanged month-on-month, value increased 12 per cent from USD 326 million in February. However, investment targeting the country’s biotech sector declined year-on-year from 43 deals worth USD 786 million in March 2018.

The value of PE, VC and DC investment in other countries failed to exceed USD 100 million in March: the second-largest target country by both volume and value was China, with 6 deals worth a combined USD 59 million. This represented a 77 per cent decline by value month-on-month, from deals worth USD 255 million in February, but was a significant improvement from the 3 deals announced in March 2018 that had no disclosed value.

The UK was the only other PE, VC and DC target country to have a recorded value, having featured in one deal worth USD 53 million. While Japan was also targeted in a single deal in the month under review.
## Private equity, venture capital and development capital deals by value

<table>
<thead>
<tr>
<th>Deal value (mil USD)</th>
<th>Deal type</th>
<th>Target</th>
<th>Target business description</th>
<th>Target country</th>
<th>General Partner/Fund Manager</th>
<th>Deal status</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. 135</td>
<td>Minority stake</td>
<td>Beam Therapeutics Inc.</td>
<td>DNA base editing therapeutics manufacturer, DNA base editing treatment research and development services</td>
<td>US</td>
<td>ARCH Venture Partners LLC; Redmile Group LLC; Altitude Life Science Management LLC; Cormorant Asset Management LLC; Eight Roads Services UK Ltd; Impresa Management LLC; Omega Fund Management LLC</td>
<td>Completed</td>
</tr>
<tr>
<td>2. 55</td>
<td>Minority stake</td>
<td>Secura Bio Inc.</td>
<td>Oncology pharmaceuticals manufacturer</td>
<td>US</td>
<td>Athryum Capital Management LP</td>
<td>Completed</td>
</tr>
<tr>
<td>3. 53</td>
<td>Minority stake</td>
<td>Inivista Ltd</td>
<td>Clinical cancer bio-genomic products research and development services</td>
<td>GB</td>
<td>IP Group plc; Cambridge Innovation Capital plc; Woodford Asset Management LLP; RT Ventures</td>
<td>Completed</td>
</tr>
<tr>
<td>4. 50</td>
<td>Minority stake</td>
<td>Surrozen Inc.</td>
<td>Stem cell control biopharmaceuticals developer</td>
<td>US</td>
<td>The Column Group LLC; Horizons Ventures Ltd</td>
<td>Completed</td>
</tr>
<tr>
<td>5. 42</td>
<td>Minority stake</td>
<td>Abbisko Therapeutics Co., Ltd</td>
<td>Biotechnology research and development services</td>
<td>CN</td>
<td>Shanghai CCI Investment Co., Ltd; TF Capital; Qiming Cayman Ltd; Loyal Valley Innovation Capital</td>
<td>Completed</td>
</tr>
<tr>
<td>6. 40</td>
<td>Minority stake</td>
<td>Imago BioSciences Inc.</td>
<td>Gene expression patterns modification-based therapeutics developer</td>
<td>US</td>
<td>Frazier Management LLC; Argen Ventures LLC; Greenspring Associates Inc.; MRL Ventures LLC; Omega Fund Management LLC; Jiangsu Honghui Equity Investment Management Co., Ltd</td>
<td>Completed</td>
</tr>
<tr>
<td>7. 15</td>
<td>Minority stake</td>
<td>BillionToOne Inc.</td>
<td>DNA and biological research and development services</td>
<td>US</td>
<td>Y Combinator Management LLC; 500 Startups Management Company LLC; Hummingbird Ventures LP; HOF Capital BV; 500 Startups Management Company LLC; Fifty Years GP LLC; Civilization Ventures LLC; NeoTribe Management Company LLC</td>
<td>Completed</td>
</tr>
<tr>
<td>8. 12</td>
<td>Minority stake</td>
<td>FirstString Research Inc.</td>
<td>Inflammation and injury biopharmaceuticals developer</td>
<td>US</td>
<td></td>
<td>Completed</td>
</tr>
<tr>
<td>9. 11</td>
<td>Minority stake</td>
<td>Reliant Immune Diagnostics LLC</td>
<td>Diagnostic test kits manufacturer</td>
<td>US</td>
<td></td>
<td>Completed</td>
</tr>
<tr>
<td>10. 10</td>
<td>Minority stake</td>
<td>Nutcracker Therapeutics Inc.</td>
<td>Biotechnology</td>
<td>US</td>
<td></td>
<td>Completed</td>
</tr>
</tbody>
</table>
Private equity, venture capital and development capital deals by value (Cont’d)

<table>
<thead>
<tr>
<th>Deal value (mil USD)</th>
<th>Deal type</th>
<th>Target</th>
<th>Target business description</th>
<th>Target country</th>
<th>General Partner/Fund Manager</th>
<th>Deal status</th>
</tr>
</thead>
<tbody>
<tr>
<td>11. 8</td>
<td>Minority stake</td>
<td>Trethera Corp</td>
<td>Biotechnology</td>
<td>US</td>
<td>Wuhan Ruicheng Equity Investment Management Co., Ltd</td>
<td>Completed</td>
</tr>
<tr>
<td>12. 7</td>
<td>Minority stake</td>
<td>Jiangsu Yaohai Biological Pharmaceutical Co., Ltd</td>
<td>Research and development in engineered protein drugs</td>
<td>CN</td>
<td>Wuhan Ruicheng Equity Investment Management Co., Ltd</td>
<td>Completed</td>
</tr>
<tr>
<td>13. 6</td>
<td>Minority stake 29%</td>
<td>Yantai Heyuan Aidisi Biomedical Technology Co., Ltd</td>
<td>Biological medicine manufacturer</td>
<td>CN</td>
<td>SDIC Venture Capital Investment Co., Ltd</td>
<td>Pending</td>
</tr>
<tr>
<td>14. 5</td>
<td>Minority stake</td>
<td>Artizan Biosciences Inc.</td>
<td>Biotechnology</td>
<td>US</td>
<td>SDIC Venture Capital Investment Co., Ltd</td>
<td>Completed</td>
</tr>
<tr>
<td>15. 4</td>
<td>Minority stake</td>
<td>Alvarado Therapeutics Inc.</td>
<td>Biotechnology</td>
<td>US</td>
<td>SDIC Venture Capital Investment Co., Ltd</td>
<td>Completed</td>
</tr>
<tr>
<td>16. 3</td>
<td>Minority stake</td>
<td>Meissa Vaccines Inc.</td>
<td>Respiratory syncytial virus and rhinovirus vaccines developer</td>
<td>US</td>
<td>SDIC Venture Capital Investment Co., Ltd</td>
<td>Completed</td>
</tr>
<tr>
<td>17. 2</td>
<td>Minority stake</td>
<td>Bioincept LLC</td>
<td>Biotechnology</td>
<td>US</td>
<td>SDIC Venture Capital Investment Co., Ltd</td>
<td>Completed</td>
</tr>
<tr>
<td>18. 2</td>
<td>Minority stake</td>
<td>EnClear Therapies Inc.</td>
<td>Biotechnology device-based therapies developer</td>
<td>US</td>
<td>Bioverge Inc.; Presight Capital Ltd; Thiel Capital LLC</td>
<td>Completed</td>
</tr>
<tr>
<td>19. 2</td>
<td>Minority stake</td>
<td>Garwood Medical Devices LLC</td>
<td>Biotechnology</td>
<td>US</td>
<td>Bioverge Inc.; Presight Capital Ltd; Thiel Capital LLC</td>
<td>Completed</td>
</tr>
</tbody>
</table>
### Target countries by volume - private equity, venture capital and development capital deals

<table>
<thead>
<tr>
<th>Target country</th>
<th>Mar-18</th>
<th>Feb-19</th>
<th>Mar-19</th>
</tr>
</thead>
<tbody>
<tr>
<td>US</td>
<td>43</td>
<td>32</td>
<td>32</td>
</tr>
<tr>
<td>China</td>
<td>3</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>UK</td>
<td>4</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Japan</td>
<td>0</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

### Target countries by value - private equity, venture capital and development capital deals

<table>
<thead>
<tr>
<th>Target country</th>
<th>Mar-18 (mil USD)</th>
<th>Feb-19 (mil USD)</th>
<th>Mar-19 (mil USD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>US</td>
<td>786</td>
<td>326</td>
<td>365</td>
</tr>
<tr>
<td>China</td>
<td>0</td>
<td>255</td>
<td>59</td>
</tr>
<tr>
<td>UK</td>
<td>2</td>
<td>13</td>
<td>53</td>
</tr>
</tbody>
</table>
Private equity, venture capital and development capital investors

<table>
<thead>
<tr>
<th>Company name</th>
<th>Number of deals</th>
<th>Number with consideration</th>
<th>Total deal value (mil USD)</th>
<th>Average deal value (mil USD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Omega Fund Management LLC</td>
<td>2</td>
<td>2</td>
<td>175</td>
<td>88</td>
</tr>
<tr>
<td>Eight Roads Services UK Ltd</td>
<td>1</td>
<td>1</td>
<td>135</td>
<td>135</td>
</tr>
<tr>
<td>Impresa Management LLC</td>
<td>1</td>
<td>1</td>
<td>135</td>
<td>135</td>
</tr>
<tr>
<td>Redmile Group LLC</td>
<td>1</td>
<td>1</td>
<td>135</td>
<td>135</td>
</tr>
<tr>
<td>ARCH Venture Partners LLC</td>
<td>1</td>
<td>1</td>
<td>135</td>
<td>135</td>
</tr>
<tr>
<td>Attitude Life Science Management LLC</td>
<td>1</td>
<td>1</td>
<td>135</td>
<td>135</td>
</tr>
<tr>
<td>Cormorant Asset Management LLC</td>
<td>1</td>
<td>1</td>
<td>135</td>
<td>135</td>
</tr>
<tr>
<td>Althyrium Capital Management LP</td>
<td>1</td>
<td>1</td>
<td>55</td>
<td>55</td>
</tr>
<tr>
<td>IP Group plc</td>
<td>1</td>
<td>1</td>
<td>53</td>
<td>53</td>
</tr>
<tr>
<td>RT Ventures</td>
<td>1</td>
<td>1</td>
<td>53</td>
<td>53</td>
</tr>
<tr>
<td>Cambridge Innovation Capital plc</td>
<td>1</td>
<td>1</td>
<td>53</td>
<td>53</td>
</tr>
<tr>
<td>Woodford Asset Management LLP</td>
<td>1</td>
<td>1</td>
<td>53</td>
<td>53</td>
</tr>
<tr>
<td>Horizons Ventures Ltd</td>
<td>1</td>
<td>1</td>
<td>50</td>
<td>50</td>
</tr>
<tr>
<td>The Column Group LLC</td>
<td>1</td>
<td>1</td>
<td>50</td>
<td>50</td>
</tr>
<tr>
<td>Qiming Cayman Ltd</td>
<td>1</td>
<td>1</td>
<td>42</td>
<td>42</td>
</tr>
<tr>
<td>Loyal Valley Innovation Capital</td>
<td>1</td>
<td>1</td>
<td>42</td>
<td>42</td>
</tr>
<tr>
<td>Shanghai CCI Investment Co., Ltd</td>
<td>1</td>
<td>1</td>
<td>42</td>
<td>42</td>
</tr>
<tr>
<td>TF Capital</td>
<td>1</td>
<td>1</td>
<td>42</td>
<td>42</td>
</tr>
<tr>
<td>Amgen Ventures LLC</td>
<td>1</td>
<td>1</td>
<td>40</td>
<td>40</td>
</tr>
<tr>
<td>Jiangsu Honghui Equity Investment Management Co., Ltd</td>
<td>1</td>
<td>1</td>
<td>40</td>
<td>40</td>
</tr>
<tr>
<td>MRL Ventures LLC</td>
<td>1</td>
<td>1</td>
<td>40</td>
<td>40</td>
</tr>
<tr>
<td>Frazier Management LLC</td>
<td>1</td>
<td>1</td>
<td>40</td>
<td>40</td>
</tr>
<tr>
<td>Greenspring Associates Inc.</td>
<td>1</td>
<td>1</td>
<td>40</td>
<td>40</td>
</tr>
</tbody>
</table>
Biotech M&A value in March improved month-on-month and year-on-year

There were 104 mergers and acquisitions (M&A) worth a total USD 8,638 million targeting biotech companies in March. Value increased 8 per cent from USD 7,992 million in February, and volume was up from 99 deals month-on-month. Similarly, value more than doubled from USD 4,116 million year-on-year, though volume dropped from 127 deals in March 2018.

Value was largely supported by one deal, in which listed biopharmaceutical giant AstraZeneca raised USD 3,500 million via an accelerated bookbuilding process with new and institutional investments to fund a global oncology development and commercial collaboration with Daiichi Sankyo for trastuzumab deruxtecan. This deal accounted for 41 per cent of March’s total M&A value.

The second-largest deal announced in March, and the only other to surpass USD 1,000 million, involved Thermo Fisher Scientific announcing plans to acquire Brammer Bio in a USD 1,700 million cash deal that provides an exit for Ampersand Capital Partners and is expected to add 10 US cents to earnings per share in the first full year of ownership.

A UK-based target accounted for the third-largest M&A deal of the month as Biogen of the US, via acquisition vehicle Tungsten Bidco, is in the process of taking over Nightstar Therapeutics for USD 877 million. This deal, plus AstraZeneca’s capital increase, helped make the UK the top target country by M&A value in March (USD 4,429 million).

### Deals by volume and value

<table>
<thead>
<tr>
<th>Announced date</th>
<th>No of deals</th>
<th>Total deal value (mil USD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mar-19</td>
<td>104</td>
<td>8,638</td>
</tr>
<tr>
<td>Feb-19</td>
<td>99</td>
<td>7,992</td>
</tr>
<tr>
<td>Jan-19</td>
<td>108</td>
<td>77,046</td>
</tr>
<tr>
<td>Dec-18</td>
<td>390</td>
<td>18,450</td>
</tr>
<tr>
<td>Nov-18</td>
<td>119</td>
<td>2,474</td>
</tr>
<tr>
<td>Oct-18</td>
<td>115</td>
<td>4,105</td>
</tr>
<tr>
<td>Sep-18</td>
<td>92</td>
<td>2,370</td>
</tr>
<tr>
<td>Aug-18</td>
<td>136</td>
<td>4,721</td>
</tr>
<tr>
<td>Jul-18</td>
<td>134</td>
<td>5,599</td>
</tr>
<tr>
<td>Jun-18</td>
<td>115</td>
<td>5,393</td>
</tr>
<tr>
<td>May-18</td>
<td>146</td>
<td>5,501</td>
</tr>
<tr>
<td>Apr-18</td>
<td>111</td>
<td>13,020</td>
</tr>
<tr>
<td>Mar-18</td>
<td>127</td>
<td>4,116</td>
</tr>
</tbody>
</table>
Deals by volume and value

![Graph showing deals by volume and value from March 2018 to March 2019. The graph displays total deal value (in millions of USD) and the number of deals. The total deal value shows a trend rising sharply in January 2019, followed by a drop by February 2019. The number of deals, represented by bars, increases significantly in December 2018, peaking in January 2019, and then decreases in February and March 2019.]

- **Total deal value (mil USD)**
- **Number of deals**
## Top 20 deals by value

<table>
<thead>
<tr>
<th>Deal value (mil USD)</th>
<th>Deal type</th>
<th>Target</th>
<th>Target business description</th>
<th>Target country</th>
<th>Acquirer</th>
<th>Deal status</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. 3,500</td>
<td>Capital Increase 3%</td>
<td>AstraZeneca plc</td>
<td>Biopharmaceuticals developer, Biopharmaceuticals manufacturer</td>
<td>GB</td>
<td>Investors; Institutional Investors</td>
<td>Completed</td>
</tr>
<tr>
<td>2. 1,700</td>
<td>Acquisition 100%</td>
<td>Brammer Bio MA LLC</td>
<td>In-vivo gene therapy viral vectors manufacturer</td>
<td>US</td>
<td>Thermo Fisher Scientific Inc.</td>
<td>Announced</td>
</tr>
<tr>
<td>3. 877</td>
<td>Acquisition 100%</td>
<td>Nightstar Therapeutics plc</td>
<td>Clinical-stage choroideremia treatment biopharmaceutical drugs research and development services</td>
<td>GB</td>
<td>Biogen Inc via acquisition vehicle Tungsten Bidco Ltd</td>
<td>Pending</td>
</tr>
<tr>
<td>4. 748</td>
<td>Capital Increase</td>
<td>Exact Sciences Corporation</td>
<td>Colorectal cancer tests biological research services, Colorectal cancer tests developer</td>
<td>US</td>
<td></td>
<td>Completed</td>
</tr>
<tr>
<td>5. 200</td>
<td>Capital Increase 8%</td>
<td>MyoKardia Inc.</td>
<td>Cardiovascular disease small molecule therapeutics developer, Cardiovascular disease small molecule therapeutics manufacturer</td>
<td>US</td>
<td></td>
<td>Announced</td>
</tr>
<tr>
<td>6. 152</td>
<td>Minority stake</td>
<td>CRISPR Therapeutics AG</td>
<td>Gene editing process developer, Genetic disease research</td>
<td>CH</td>
<td>Versant Venture Management LLC</td>
<td>Completed</td>
</tr>
<tr>
<td>7. 135</td>
<td>Minority stake</td>
<td>Beam Therapeutics Inc.</td>
<td>DNA base editing therapeutics manufacturer, DNA base editing treatment research and development</td>
<td>US</td>
<td>Investors; ARCH Venture Partners LLC; Redmile Group LLC; Altitude Life Science Management LLC; Cormorant Asset Management LLC; Eight Roads Services UK Ltd; Impresa Management LLC; GV; Omega Fund Management LLC</td>
<td>Completed</td>
</tr>
<tr>
<td>8. 124</td>
<td>Acquisition 100%</td>
<td>Tianjin Jinyao Biotech Co., Ltd</td>
<td>Biotechnology research services, Steam supply services</td>
<td>CN</td>
<td>Tianjin Pharmaceutical Group Co., Ltd; Tianjin Tianyao Pharmaceutical Co., Ltd</td>
<td>Pending</td>
</tr>
<tr>
<td>9. 90</td>
<td>Minority stake</td>
<td>Veracyte Inc.</td>
<td>Molecular diagnostics products developer</td>
<td>US</td>
<td>Versant Venture Management LLC</td>
<td>Completed</td>
</tr>
<tr>
<td>10. 82</td>
<td>Capital Increase</td>
<td>Shanghai Runda Medical Technology Co., Ltd</td>
<td>Clinical diagnostic products wholesaler</td>
<td>CN</td>
<td></td>
<td>Pending</td>
</tr>
</tbody>
</table>
### Top 20 deals by value (cont’d)

<table>
<thead>
<tr>
<th>Deal value (mil USD)</th>
<th>Deal type</th>
<th>Target</th>
<th>Target business description</th>
<th>Target country</th>
<th>Acquirer</th>
<th>Deal status</th>
</tr>
</thead>
<tbody>
<tr>
<td>11. 74</td>
<td>Acquisition to 100%</td>
<td>Shanghai Futuo Biotechnology Development Co., Ltd</td>
<td>Biological product research and development services, Biological products manufacturer</td>
<td>CN</td>
<td>Shanghai Fosun Pharmaceutical (Group) Co., Ltd; Shanghai Fosun Health Industry Holding Co., Ltd</td>
<td>Announced</td>
</tr>
<tr>
<td>12. 55</td>
<td>Minority stake</td>
<td>Secura Bio Inc.</td>
<td>Oncology pharmaceuticals manufacturer</td>
<td>US</td>
<td>Athyrium Capital Management LP</td>
<td>Completed</td>
</tr>
<tr>
<td>13. 53</td>
<td>Minority stake</td>
<td>Inivata Ltd</td>
<td>Clinical cancer bio-genomic products research and development services</td>
<td>GB</td>
<td>IP Group plc; Cambridge Innovation Capital plc; Woodford Patient Capital Trust plc; Johnson &amp; Johnson Innovation - JJDC Inc.; RT Ventures</td>
<td>Completed</td>
</tr>
<tr>
<td>14. 51</td>
<td>Minority stake 15%</td>
<td>Vivet Therapeutics SAS</td>
<td>Gene therapy treatments research and development</td>
<td>FR</td>
<td>Pfizer Inc.</td>
<td>Completed</td>
</tr>
<tr>
<td>15. 50</td>
<td>Capital Increase 20%</td>
<td>resTORbio Inc.</td>
<td>Biopharmaceuticals research and development</td>
<td>US</td>
<td></td>
<td>Completed</td>
</tr>
<tr>
<td>16. 50</td>
<td>Minority stake</td>
<td>Surrozen Inc.</td>
<td>Stem cell control biopharmaceuticals developer</td>
<td>US</td>
<td>Other Investors; The Column Group LLC; Horizons Ventures Ltd; NS Investments LLC; Hartford HealthCare Endowment LLC</td>
<td>Completed</td>
</tr>
<tr>
<td>17. 45</td>
<td>Acquisition 100%</td>
<td>Granotec do Brasil SA Nutricao E Biotecnologia</td>
<td>Biotechnology and nutrition research and development services, Nutrition ingredients manufacturer</td>
<td>BR</td>
<td>Corbion NV</td>
<td>Announced</td>
</tr>
<tr>
<td>18. 42</td>
<td>Minority stake</td>
<td>Abbisko Therapeutics Co., Ltd</td>
<td>Biotechnology research and development services</td>
<td>CN</td>
<td>Investors; Lilly Asia Ventures Management Co., Ltd; Sovereign Wealth Fund; Shanghai CCI Investment Co., Ltd; TF Capital; Qiming Cayman Ltd; Loyal Valley Innovation Capital</td>
<td>Completed</td>
</tr>
<tr>
<td>20. 37</td>
<td>Acquisition 51% to 79%</td>
<td>Duoduo Pharmaceuticals Co., Ltd</td>
<td>Biotechnology development services, Pharmaceutical manufacturer</td>
<td>CN</td>
<td>Beijing Centergate Four-ring Pharmaceutical Development Co., Ltd</td>
<td>Pending Development</td>
</tr>
</tbody>
</table>

© Bureau van Dijk
<table>
<thead>
<tr>
<th>Target country</th>
<th>Mar-18</th>
<th>Feb-19</th>
<th>Mar-19</th>
</tr>
</thead>
<tbody>
<tr>
<td>US</td>
<td>54</td>
<td>41</td>
<td>50</td>
</tr>
<tr>
<td>China</td>
<td>15</td>
<td>12</td>
<td>16</td>
</tr>
<tr>
<td>Japan</td>
<td>4</td>
<td>5</td>
<td>8</td>
</tr>
<tr>
<td>UK</td>
<td>8</td>
<td>10</td>
<td>6</td>
</tr>
<tr>
<td>South Korea</td>
<td>3</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>Taiwan</td>
<td>2</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>Germany</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Brazil</td>
<td>1</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Sweden</td>
<td>3</td>
<td>6</td>
<td>2</td>
</tr>
<tr>
<td>India</td>
<td>2</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Ireland</td>
<td>1</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Singapore</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Canada</td>
<td>3</td>
<td>7</td>
<td>1</td>
</tr>
<tr>
<td>Switzerland</td>
<td>2</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>France</td>
<td>1</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Poland</td>
<td>1</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Indonesia</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Target country</th>
<th>Mar-18 (mil USD)</th>
<th>Feb-19 (mil USD)</th>
<th>Mar-19 (mil USD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>UK</td>
<td>67</td>
<td>29</td>
<td>4,429</td>
</tr>
<tr>
<td>US</td>
<td>1,505</td>
<td>5,196</td>
<td>3,325</td>
</tr>
<tr>
<td>China</td>
<td>283</td>
<td>327</td>
<td>432</td>
</tr>
<tr>
<td>Switzerland</td>
<td>39</td>
<td>38</td>
<td>152</td>
</tr>
<tr>
<td>South Korea</td>
<td>315</td>
<td>2</td>
<td>63</td>
</tr>
<tr>
<td>Taiwan</td>
<td>13</td>
<td>1</td>
<td>52</td>
</tr>
<tr>
<td>France</td>
<td>5</td>
<td>508</td>
<td>51</td>
</tr>
<tr>
<td>Brazil</td>
<td>0</td>
<td>0</td>
<td>45</td>
</tr>
<tr>
<td>Japan</td>
<td>166</td>
<td>18</td>
<td>37</td>
</tr>
<tr>
<td>Sweden</td>
<td>10</td>
<td>28</td>
<td>18</td>
</tr>
<tr>
<td>Ireland</td>
<td>50</td>
<td>0</td>
<td>11</td>
</tr>
<tr>
<td>India</td>
<td>1</td>
<td>0</td>
<td>8</td>
</tr>
<tr>
<td>Germany</td>
<td>5</td>
<td>51</td>
<td>5</td>
</tr>
<tr>
<td>Singapore</td>
<td>0</td>
<td>0</td>
<td>5</td>
</tr>
<tr>
<td>Indonesia</td>
<td>0</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Canada</td>
<td>50</td>
<td>1,645</td>
<td>1</td>
</tr>
</tbody>
</table>
### IPOs by volume and value

<table>
<thead>
<tr>
<th>Announced date</th>
<th>No of deals</th>
<th>Total deal value (mil USD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mar-19</td>
<td>1</td>
<td>120</td>
</tr>
<tr>
<td>Feb-19</td>
<td>3</td>
<td>101</td>
</tr>
<tr>
<td>Jan-19</td>
<td>3</td>
<td>225</td>
</tr>
<tr>
<td>Dec-18</td>
<td>5</td>
<td>288</td>
</tr>
<tr>
<td>Nov-18</td>
<td>3</td>
<td>1,052</td>
</tr>
<tr>
<td>Oct-18</td>
<td>2</td>
<td>352</td>
</tr>
<tr>
<td>Sep-18</td>
<td>6</td>
<td>203</td>
</tr>
<tr>
<td>Aug-18</td>
<td>3</td>
<td>120</td>
</tr>
<tr>
<td>Jul-18</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>Jun-18</td>
<td>8</td>
<td>1,237</td>
</tr>
<tr>
<td>May-18</td>
<td>7</td>
<td>915</td>
</tr>
<tr>
<td>Apr-18</td>
<td>1</td>
<td>6</td>
</tr>
<tr>
<td>Mar-18</td>
<td>1</td>
<td>144</td>
</tr>
</tbody>
</table>
March IPOs

<table>
<thead>
<tr>
<th>Deal value (mil USD)</th>
<th>Deal type</th>
<th>Target</th>
<th>Target business description</th>
<th>Target country</th>
<th>Announced date</th>
<th>Deal status</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. 120</td>
<td>Planned IPO 10% on Shanghai Stock Exchange Sci-Tech Innovation Board</td>
<td>Shenzhen Chipscreen Co., Ltd</td>
<td>Biotechnology research and development services, Pharmaceutical research and development services, Small molecule pharmaceuticals manufacturer</td>
<td>CN</td>
<td>27/03/2019</td>
<td>Pending</td>
</tr>
</tbody>
</table>
Notes to editors

The search criteria uses a key word system based on the targets' business description

The key words and phrases are: “biotechnology” OR “antimicrobial” OR “CNS” OR “neurotransmitter” OR “cardiovascular” OR “blood system agent” OR “cell control agent” OR “dermatological” OR “genetic” OR “hormone” OR “immunomodulator” OR “ion Channel” OR “modulate” OR “metabolic” OR “musculoskeletal” OR “renal system” OR “reproductive” OR “respiratory” OR “diagnostic” OR “gastrointestinal” OR “degeneration” OR “endocrine” OR “growth disorder” OR “gynecology” OR “obstetrics” OR “haematological” OR “neurological” OR “neoplasm” OR “neurological” OR “nutritional” OR “psychiatric” OR “toxicity” OR “ulcer” OR “genitourinary” OR “oncology” OR “biological” OR “clinical” OR “biomedical” OR “bioinformatics” OR “cheminformatics” OR “biologicgenerics” OR “genetics” OR “genomics” OR “transgenic” OR “protein” OR “RNA” OR “DNA” OR “enzyme” OR “fermentation” OR “oncogenomics” OR “proteomics” OR “nanobiotechnology” OR “Gene” OR “Central nervous system” OR “Cloning” OR “genome” OR “genotyping” OR “molecular” OR “molecular biology” OR “animal cell culture” OR “biochemistry” OR “embryology” OR “cell biology” OR “Tissue Engineering” OR “Stem Cell” OR “Pharmacogenomics” OR “Escherichia Coli” OR “E. Coli” OR “Embryos” OR “molecule” OR “transgenic” OR “biotechnology” OR “biotech” OR “bio tech” OR “biopharmaceuticals” OR “micropropagation” OR “biobased products” OR “biopharming” OR “biotechnology-derived” OR “bt corn” OR “chromosomes” OR “embryonic stem cells” OR “fibroblast” OR “molecular biology” OR “mutation” OR “nucleotide” OR “organic agriculture” OR “phenotype” OR “plant-incorporated protectants” OR “pollen” OR “tissue culture” OR “transfection” OR “virus” OR “vitamin” OR “xenotransplantation” OR “zygote”

Activity is based on the activity of the target company

Deal status is announced, completed, pending or unconditional