## New Products - August 2022



Building Blocks / Pharmaceutical Intermediates / Chemical Reagents

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As a receptor tyrosine kinase of insulin receptor (IR) subfamily, anaplastic lymphoma kinase (ALK) has been validated to play important roles in various cancers, especially anaplastic large cell lymphoma (ALCL), non-small cell lung cancer (NSCLC), and neuroblastomas<sup>[1]</sup>. Currently, five small-molecule inhibitors of ALK, including Crizotinib, Ceritinib, Alectinib, Brigatinib and Lorlatinib, have been approved by the U.S. FDA against ALK-positive NSCLCs. To address the unmet need of the emergence of multiple combinations of acquired double ALK mutations, there are currently two 4G ALK TKIs (TPX-0131 and NVL-655) being developed. TPX-0131 has been designed with a novel compact macrocyclic structure and has shown preclinical potent inhibition of wildtype and numerous ALK mutations. NVL-655 is a novel brain-penetrant ALK-selective inhibitor created to overcome several limitations observed with currently available therapies and it started a phase 1/2 clinical trial on June 9, 2022<sup>[2-10]</sup>.



Crizotinib the first-generation ALK inhibitor



Ceritinib the second-generation ALK inhibitor



second-generation ALK inhibitor



Brigatinib the second-generation ALK inhibitor



Ensartinib the second-generation ALK inhibitor



Lorlatinib the third-generation ALK inhibitor



TPX-0131 the fourth-generation ALK inhibitor

A series of building blocks will be used as molecular fragments in the design of ALK inhibitors.

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- [2] Journal of Medicinal Chemistry (2019), 62, 10, 4915-4935.
- [3] Journal of Medicinal Chemistry (2018), 61, 9, 4249-4255.
- [4] European Journal of Medicinal Chemistry (2022), 238, 114493.
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- [6] Bioorganic & Medicinal Chemistry (2020), 28, 20, 115719.
- [7] Bioorganic & Medicinal Chemistry (**2019**), 27, 20, 115051.
- [8] Translational Oncology (**2021**), 14, 11, 101191.
- [9] WO2021226208A2.
- [10] WO2021226269A1.



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