Small/medium-sized enterprise  
Stock exchange: NASDAQ • Ticker: TTPH • HQ: Massachusetts, USA • Employees: 119

PERFORMANCE

Tetraphase performs above average in Research & Development when compared to other small and medium-sized enterprises in scope.

R&D: Tetraphase has three antibacterial projects in its pipeline that target priority pathogens, including one candidate for the treatment of serious and life-threatening multidrug-resistant (MDR) bacterial infections caused by pathogens including Carbapenem-resistant Enterobacteriaceae (CRE) and Carbapenem-resistant A. baumannii (CRAB). Reports project-specific access and stewardship plans for its recently approved medicine, eravacycline.

SALES AND OPERATIONS

Therapeutic areas: Antibiotics
Products on the market: 1, eravacycline (Xerava™) approved in August 2018 for the treatment of complicated intra-abdominal infections

R&D grants received since 2016: At least USD 4 million, awarded by one funder (CARB-X). The award, worth USD 4 million, was granted in March 2017 to support its pipeline candidate TP-6076 which has demonstrated potent activity against MDR bacteria, including carbapenem-resistant Enterobacteriaceae and carbapenem-resistant A. baumannii.

Financing and investment structure: Tetraphase is a publicly listed company. It completed its IPO in March 2013 raising USD 75 million, following four funding series raising USD 95 million. Its lead investors were Excel Venture Management and Mediphase Venture Partners.

M&A since 2018: None in the antibacterial and/or antifungal sectors

PIPELINE for diseases in scope

Pipeline size: 3 projects for priority pathogens* (3 antibacterial medicines)
Development stages: 2 clinical projects, including TP-271, a Phase I clinical candidate for the treatment of respiratory disease caused by bacterial biothreats and antibacterial-resistant public health pathogens
Novelty: No novel clinical-stage medicine projects
Regulatory approvals: 1, for eravacycline (Xerava™) for the treatment of complicated intra-abdominal infections in 2018

Access plans: Its 1 late-stage R&D project has a project-specific access plan which includes a commitment to addressing affordability through licensing agreements.

Stewardship plans: Its 1 late-stage R&D medicine project has a project-specific stewardship plan which includes the development of a surveillance network for bacterial susceptibility to eravacycline.

Revenues

(2018)

Performance in the Benchmark

Overall score

Performance by Research Area

R&D

Manufacturing

Access

Stewardship

How Tetraphase was evaluated

Each indicator is worth a max score of 5. Indicators are not applicable to every company. See Appendix for full overview.

Performance for priority pathogens

Antibacterial (AB) vaccine
Antibacterial (AB) medicine
Antifungal (AF) medicine
AB+AF combination

* Bacteria and fungi that have been identified as priority R&D targets for limiting AMR, by either the WHO and/or the Centers for Disease Control and Prevention (CDC). See Appendix V.
**OPPORTUNITIES FOR TETRAPHASE**

Expand the implementation of the access and stewardship plans for eravacycline (Xerava™). Tetraphase has already implemented access and stewardship plans (including a license to Everest Medicines in the ASEAN region and a surveillance programme) for eravacycline, its antibacterial candidate that recently was approved. Tetraphase can also implement its commitment to addressing affordability through licensing agreements that would supply this medicine in other markets, like Latin America and Africa countries. In order to promote appropriate use of eravacycline, Tetraphase can decouple sales incentives from sales volumes and consider publicly sharing raw data collected for its long-term, multinational surveillance programme.

**PERFORMANCE BY RESEARCH AREA**

**A.1 RESEARCH & DEVELOPMENT** Evaluated: medicine & vaccine pipelines for priority* bacteria & fungi

- **A.2.1 Pipeline size of three projects**
  Tetraphase reports three projects targeting priority pathogens in its pipeline. The company focuses on antibacterial medicine development, and has two projects in clinical development, in addition to its recently approved product eravacycline (Xerava™).

- **A.2.2 No clinical-stage novel projects**
  Tetraphase’s clinical-stage medicine pipeline for priority pathogens consists entirely of new R&D projects. It does not currently include candidates that are considered novel. However, Tetraphase has three clinical-stage new R&D projects, including TP-6076 for the treatment of serious and life-threatening MDR bacterial infections caused by pathogens including CRE and CRAB, among others.

- **A.2.3 Vaccines in the pipeline**
  Tetraphase is not eligible for this indicator as it is not active in vaccine development.

- **A.2.4 Two candidates targeting critical priorities**
  Tetraphase’s clinical pipeline includes one antibacterial medicine in Phase I: TP-6076, which targets CRE and CRAB. The company also has a recently approved medicine, eravacycline (Xerava™), which targets CRE, **N. gonorrhoeae** and resistant strains of **A. baumannii**. These pathogens are among those that are considered critical and/or urgent R&D priorities for limiting AMR, as identified by WHO and/or the US Centers for Disease Control and Prevention (CDC).

- **A.3 Intellectual capital sharing**
  As an SME, Tetraphase was not scored for this indicator, in line with the external stakeholder consensus defined by the Foundation.

**CHANGES SINCE 2018**

- Received FDA approval in August 2018 for eravacycline (Xerava™) for the treatment of complicated intra-abdominal infections.
- Entered into a global-level development and commercialisation agreement in 2018 with Everest Medicines for eravacycline in China, Taiwan, Hong Kong, Macau, South Korea, Singapore, Thailand, Indonesia, Philippines and Malaysia.

**Pipeline targeting priority pathogens: 3 As at 16 October 2019**

<table>
<thead>
<tr>
<th>Discovery</th>
<th>Pre-clinical</th>
<th>Phase I</th>
<th>Phase II</th>
<th>Phase III</th>
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</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>TP-271 - ESBL-producing Enterobacteriaceae, MRSA, VRE</td>
<td></td>
<td>Eravacycline (Xerava™) - Multidrug-resistant GNB/GPB, including Enterobacteriaceae (incl. CRE), A. baumannii, Enterococcus spp. and S. aureus</td>
</tr>
</tbody>
</table>

*** Bacteria and fungi that have been identified as priority R&D targets for limiting AMR, by either the WHO and/or the Centers for Disease Control and Prevention (CDC). See Appendix V.**
B RESPONSIBLE MANUFACTURING

As an SME, Tetraphase is not evaluated in this Research Area. It has one antibacterial product on the market: the antibacterial eravacycline (Xerava™).

C APPROPRIATE ACCESS & STEWARDSHIP

As an SME, Tetraphase is not evaluated in this Research Area. It has one antibacterial and/or antifungal product on the market: the antibacterial eravacycline (Xerava™). The Benchmark notes that it is active in one AMR surveillance programme, and that it openly publishes its results.

Specifically, Tetraphase reports that it is active in a long-term AMR surveillance programme, which focuses on surveillance of eravacycline against Gram-negative and Gram-positive clinical isolates globally.