

# PRESS RELEASE

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## Wacker Biotech and PhaseBio Sign License Agreement for ESETEC<sup>®</sup>-Based Production of Antibody Fragment PB2452

**Munich and Jena, April 23, 2019 – WACKER subsidiary Wacker Biotech GmbH and US biopharmaceutical company PhaseBio Pharmaceuticals Inc. signed a license agreement for the production of antibody fragment PB2452. Under the agreement, PhaseBio obtains the right to use both WACKER's ESETEC<sup>®</sup>-based production strain and WACKER's ESETEC<sup>®</sup> technology to manufacture and commercialize the antibody fragment.**

“Our license agreement with PhaseBio underscores the fact that our ESETEC<sup>®</sup> platform is a key technology for making antibody fragments and developing successful biopharmaceuticals,” says Dr. Susanne Leonhartsberger, managing director of Wacker Biotech GmbH, a WACKER subsidiary based in Jena (Germany). ESETEC<sup>®</sup> is a patented technology developed by WACKER for the highly efficient synthesis of pharmaceutical proteins. It has already proven itself in the production of antibody fragments. The effectiveness of the system was highlighted, for example, through WACKER's collaboration with MedImmune, the global biologics R&D arm of AstraZeneca. Within just a few weeks of receiving the corresponding genes, WACKER successfully produced the antibody fragment, or Fab (antigen-binding fragment). The license agreement covers both the use of the strain

developed and the manufacturing process, which produces the Fab fragment in superior yields. PhaseBio received the rights to develop PB2452 in 2017 – and has now approached WACKER.

PB2452 is an Fab antibody fragment that serves as a “reversal agent” for ticagrelor, a drug that inhibits platelet aggregation. Marketed by AstraZeneca under the trade names Brilique and Brilinta, ticagrelor is a blood thinner for treatment of patients with Acute Coronary Syndrome or a history of myocardial infarction. PB2452 demonstrated immediate and sustained reversal of the antiplatelet activity of ticagrelor in a clinical phase 1 trial. Wacker Chemie has now licensed its manufacturing process for this antibody fragment to PhaseBio. Under the agreement, PhaseBio gains direct access to WACKER’s ESETEC® technology and to WACKER’s *E.coli* strain for producing PB2452.

ESETEC®, a patented technology developed by WACKER, is based on an *E.coli* strain which secretes the desired proteins into the culture broth in the correct folding conformation during fermentation. Secretion facilitates purification of the target protein, since there is no longer any need for complicated process steps such as homogenization and refolding. This makes the entire manufacturing process significantly more efficient and cost-effective. A number of biopharmaceuticals manufactured with ESETEC® are already being evaluated in preclinical and clinical trials. “Thanks to our ESETEC® technology, we achieved the development breakthrough for antibody fragment PB2452, which needs to be produced as cost-efficiently as possible,” says Leonhartsberger.

Jonathan Mow, CEO of PhaseBio, notes that “the ESETEC® system was our choice because it offers significant productivity and time benefits for manufacture of PB2452. This technology outperforms conventional expression and secretion systems using mammalian cells.”

Today, Wacker Biotech produces the GMP (Good Manufacturing Practice) batches ordered by PhaseBio at its Amsterdam site, which became part of the WACKER Group in 2018. “A highlight of integrating the new site was that the process transfer between Jena and Amsterdam went so smoothly,” stresses Dr. Susanne Leonhartsberger. Furthermore, Wacker Biotech will continue to optimize the production process for PhaseBio.

**About Wacker Biotech**

Wacker Biotech GmbH and Wacker Biotech B.V. are full-service contract manufacturers of biopharmaceutical proteins based on microbial systems. The companies' services range from molecular biology, analytical services and process development through to the GMP-compliant manufacture of clinical test samples and pharmaceutical actives, live microbial products and vaccines for the commercial market at the GMP-compliant, FDA- and EMA-certified production plants in Jena and Halle in Germany and in Amsterdam in the Netherlands. Above all, Wacker Biotech offers proprietary technologies that satisfy market needs for cost-efficient production and maximum quality. Wacker Biotech GmbH and Wacker Biotech B.V. are wholly-owned subsidiaries of the Munich-based WACKER Group.

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**The Company in Brief:**

WACKER is a globally-active chemical company with some 14,500 employees and annual sales of around € 4.98 billion (2018). WACKER has a global network of 24 production sites, 22 technical competence centers and 50 sales offices.

**WACKER SILICONES**

Silicone fluids, emulsions, rubber grades and resins; silanes; pyrogenic silicas; thermoplastic silicone elastomers

**WACKER POLYMERS**

Polyvinyl acetates and vinyl acetate copolymers and terpolymers in the form of dispersible polymer powders, dispersions, solid resins and solutions

**WACKER BIOSOLUTIONS**

Biotech products such as cyclodextrins, cysteine and biologics, as well as fine chemicals and PVA solid resins

**WACKER POLYSILICON**

Polysilicon for the semiconductor and photovoltaic industries