Pfenex Announces U.S. Commercial Launch of Teriparatide Injection

- ***Pfenex's commercialization partner Alvogen will lead launch and commercialization efforts in the United States***
- ***The first FDA-approved teriparatide with Forteo® [1-3] as the reference drug***

SAN DIEGO, June 12, 2020 —Pfenex Inc. (NYSE American: PFNX) today announced that its commercialization partner, Alvogen, has launched Teriparatide Injection in the United States. Teriparatide Injection (also referred to as PF708 and Bonsity™) is a prescription medicine approved for several uses, including in postmenopausal women with osteoporosis who are at high risk for having bone fractures.

Teriparatide Injection is the first teriparatide product since Forteo® (teriparatide injection)[1-3] approved for this use. The Alvogen product is pharmaceutically equivalent to Forteo (that is, has the same active ingredient in the same strength, dosage form and route of administration) and has been shown to have comparable bioavailability. These characteristics allowed the product to be approved under a 505(b)(2) NDA for which Forteo was the reference drug. It may provide a lower-cost teriparatide option[4] for increasing bone density in patients at high risk for fracture[5], and is FDA-approved for the same indications as Forteo, which means it can be used for the same patients as Forteo, including new patients and those currently responding to treatment[1,2].

"We are pleased to announce the availability of Teriparatide Injection in pharmacies - the first new FDA-approved teriparatide, which provides an alternative to Forteo," said Pfenex CEO Eef Schimmelpennink. "As the first Pfenex-developed product to reach the market, this marks an important milestone for the company and delivers on the promise of the Pfenex Expression Technology platform."

"Alvogen is excited to bring this critical product to patients in need of a lower-cost alternative to Forteo," said Lisa Graver, President of Alvogen, Inc. "We are happy to partner with Pfenex to bring this product to market."

[1]Teriparatide Injection prescribing information: https://dailymed.nlm.nih.gov/dailymed/drugInfo.cfm?setid=1b007339-dd0d-f019-5e0a-9b1b0f75011c. Morristown, NJ: Alvogen, Inc.; 2019.
[2]Forteo prescribing information: https://uspl.lilly.com/forteo/forteo.html#pi. Indianapolis, IN: Eli Lilly and Company; 2012.
[3]Data on File.
[4] Lower WAC and AWP compared to Forteo® (teriparatide injection).
[5]High risk for fracture is defined as a history of osteoporotic fracture, multiple risk factors for fracture, or patients who have failed or are intolerant to other available osteoporosis therapy.

About Teriparatide Injection

Teriparatide Injection (https://www.alvogenteriparatide.com/**)** is a medication designed to assist in building new bone and is comprised of protein similar to one naturally produced by the body. It has also been shown to help increase bone strength.[1] Teriparatide Injection helps to reinforce bone by replacing—and replenishing—that which has been lost due to osteoporosis. Postmenopausal women with osteoporosis, who were at high risk for fracture, experienced significantly increased bone mineral density in the spine, after taking Teriparatide Injection with calcium and vitamin D. These results were demonstrated at three months, and throughout the treatment period. The risk of new spine fractures was reduced by approximately two thirds; the risk of new fractures in other bones—including the ankle/foot, hip, upper arm, pelvis, ribs and wrist—was cut in half.[2]

Teriparatide Injection is contraindicated for those patients with a hypersensitivity to teriparatide or to any of its excipients. Reactions have included angioedema and anaphylaxis. (Prescribing Information: https://dailymed.nlm.nih.gov/dailymed/drugInfo.cfm?setid=1b007339-dd0d-f019-5e0a-9b1b0f75011c)

As part of drug testing, teriparatide, the active ingredient in Teriparatide Injection, was given to rats for a significant part of their lifetime. In these studies, teriparatide caused some rats to develop osteosarcoma, a bone cancer. Osteosarcoma in humans is a serious but very rare cancer. Osteosarcoma occurs in about four out of every million older adults each year. It is not known if humans treated with Teriparatide Injection also have a higher chance of getting osteosarcoma. Other side effects may include nausea, dizziness, leg cramps and joint aches. Injection site reactions include redness, swelling, pain, itching, a few drops of blood and bruising. (Prescribing Information: https://dailymed.nlm.nih.gov/dailymed/drugInfo.cfm?setid=1b007339-dd0d-f019-5e0a-9b1b0f75011c)

[1]Only proven in postmenopausal women with osteoporosis.
[2]This clinical study involved 1,637 postmenopausal women with osteoporosis, of whom 90% had a spine fracture. 541 women took a daily 20-mcg dose of Teriparatide Injection; 544 took a placebo for a median time of 19 months, and a maximum of 24 months. All women took calcium and vitamin D daily.

About Osteoporosis

Osteoporotic fractures create a significant healthcare burden. An estimated two million osteoporotic fractures occur annually in the United States, and this number is projected to grow to three million by 2025. Osteoporosis is a disease of the bone that makes a person's bones weak and more likely to break. Approximately 10 million Americans have osteoporosis and another 44 million have low bone mass placing them at increased risk for osteoporosis. The annual incidence of osteoporotic fractures in women is higher than that of stroke, heart attack and breast cancer combined. A woman's risk of fracture is equal to her combined risk of breast, uterine and ovarian cancer.

About Pfenex Inc.

Pfenex is a development and licensing biotechnology company focused on leveraging its proprietary protein production platform, Pfenex Expression Technology®, to develop next generation and novel protein therapeutics to meaningfully improve existing therapies and create novel therapies for some of the biological targets linked to critical diseases still waiting to

successfully be addressed. Using the patented Pfenex Expression Technology platform, Pfenex has created a broad pipeline that is diversified across multiple assets, including U.S. Food and Drug Administration (FDA) approved, next generation and novel biopharmaceutical products. Pfenex's lead product is Teriparatide Injection (previously referred to as PF708 and Bonsity™), a therapeutic equivalent candidate to Forteo® (teriparatide injection). Teriparatide Injection has been commercialized in the U.S. for the treatment of osteoporosis in certain patients at high risk for fracture, and marketing authorization applications are pending in other jurisdictions. In addition, Pfenex is developing hematologic oncology products in collaboration with Jazz Pharmaceuticals, including PF743, a recombinant Erwinia asparaginase, and PF745, a half-life extended recombinant Erwinia asparaginase. Pfenex also uses its Pfenex Expression Technology platform to produce CRM197, a diphtheria toxoid carrier protein for use in prophylactic and therapeutic vaccines.

Pfenex investors and others should note that Pfenex announces material information to the public about Pfenex through a variety of means, including its website (http://www.pfenex.com/), its investor relations website (http://pfenex.investorroom.com/), press releases, SEC filings, public conference calls, corporate Twitter account (https://twitter.com/pfenex), Facebook page (https://www.facebook.com/Pfenex-Inc-105908276167776/timeline/), and LinkedIn page (https://www.linkedin.com/company/pfenex-inc) in order to achieve broad, non-exclusionary distribution of information to the public and to comply with its disclosure obligations under Regulation FD. Pfenex encourages its investors and others to monitor and review the information Pfenex makes public in these locations as such information could be deemed to be material information. Please note that this list may be updated from time to time.

Cautionary Note Regarding Forward-Looking Statements

This press release contains forward-looking statements within the meaning of the Private Securities Litigation Reform Act of 1995. Forward-looking statements generally relate to future events or Pfenex's future financial or operating performance. In some cases, you can identify forward-looking statements because they contain words such as "may," "will," "should," "expects," "plans," "anticipates," "could," "intends," "target," "projects," "contemplates," "believes," "estimates," "predicts," "potential" or "continue" or the negative of these words or other similar terms or expressions that concern Pfenex's future expectations, strategy, plans or intentions. Forward-looking statements in this press release include, but are not limited to, statements regarding the future potential of Pfenex's developed products, product candidates, and the company in general, including the potential benefits of Teriparatide Injection, Pfenex expectations with respect to Teriparatide Injection cost, and expected market size and growth opportunities for Teriparatide Injection. Pfenex's expectations and beliefs regarding these matters may not materialize, and actual results in future periods are subject to risks and uncertainties that could cause actual results to differ materially from those projected. Actual results may differ materially from those indicated by these forward-looking statements as a result of various factors, including: the FDA may not grant an "A" therapeutic equivalence designation for PF708; Pfenex's ability to successfully demonstrate the efficacy and safety of its product candidates; the pre-clinical and clinical results for its product candidates, which may not support further development of product candidates or may require Pfenex to conduct additional clinical trials or modify ongoing clinical trials or regulatory pathways; challenges related to commencement, patient enrollment, completion, and analysis of clinical trials; Pfenex's ability to manage operating expenses; impacts

related to the COVID-19 pandemic; Pfenex's ability to obtain additional funding to support its business activities and establish and maintain strategic business alliances and new business initiatives; Pfenex's dependence on third parties for development, manufacture, marketing, sales and distribution of products; unexpected expenditures; litigation and other proceedings regarding intellectual property rights; and difficulties in obtaining and maintaining intellectual property protection for its product candidates. Information on these and additional risks, uncertainties, and other information affecting Pfenex's business and operating results is contained in Pfenex's Quarterly Report on Form 10-Q for the quarter ended March 31, 2020 and in its other filings with the Securities and Exchange Commission. The forward-looking statements in this press release are based on information available to Pfenex as of the date hereof, and Pfenex disclaims any obligation to update any forward-looking statements, except as required by law.

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About Alvogen, Inc.

Alvogen is a global, privately owned pharmaceutical company focused on developing, manufacturing and selling generic, brand, over-the counter (OTC) and biosimilar products for patients around the world. With commercial footprint in over 20 markets, Alvogen's key regions include the U.S. and emerging markets in APAC regions.