



## Victoza and Taspoglutide Threaten Byetta Franchise Updating Diabetes Revenue Forecasts

### Companies

**Alkermes** (ALKS)  
**Amylin** (AMLN)  
**AstraZeneca** (AZN)  
**Bristol-Myers Squibb** (BMY)  
**Eli Lilly** (LLY)  
**GlaxoSmithKline** (GSK)  
**Human Genome Sciences**  
(HGS)  
**Merck** (MRK)  
**Novo Nordisk** (NVO)  
**Roche** (VTX: ROG)  
**Takeda** (OTC: TKPHF)

### Drugs

**Alogliptin**  
**Byetta** (exenatide)  
**Exenatide LAR** (Byetta Once  
Weekly)  
**Januvia** (sitagliptin)  
**Onglyza** (saxagliptin)  
**Syncria** (albiglutide)  
**Taspoglutide**  
**Victoza** (liraglutide)

- Earlier than expected FDA approval of Novo Nordisk's (NVO) Victoza (liraglutide) and phase III results from Roche's (VTX: ROG) taspoglutide have **changed our outlook for glp-1 analogs in the treatment of type II diabetes.**
- **Taspoglutide's clinical development program is particularly robust.** See today's *inThought* Research note on taspoglutide's probability of approval for more details.
- Although *inThought* continues to expect Amylin (AMLN) and Lilly's (LLY) weekly formulation of exenatide (exenatide LAR) to be the market leader among glp-1 formulations, **our outlook for the agent is significantly reduced given the positive momentum of its competitors.**
- In contrast to glp-1 analogs, **the DPP4 inhibitor outlook has changed only minimally.** Merck's Januvia (sitagliptin) slightly outperformed our expectations in 2009, while the launch of Bristol-Myers Squibb (BMY) and AstraZeneca's (AZN) Onglyza (saxagliptin) was weaker than expected.
- **2017 worldwide sales of exenatide LAR now reach nearly \$2.5 billion in our model; taspoglutide approaches \$2 billion in the same year. Januvia continues to lead the DPP4 inhibitors with 2017 worldwide sales of \$3.4 billion.**

## The Changing glp-1 Landscape

After the American Diabetes Association (ADA) meeting last year, *inThought* published its revenue outlook for DPP4 inhibitors and glp-1 analogs in the treatment of type II diabetes (see *inThought* Research, June 15, 2009). We noted that the various DPP4 inhibitors in development were clinically indistinct from Merck's Januvia, modeling a minimal ability of those compounds to gain a foothold on the large diabetes market.

In contrast, we noted that each glp-1 analog in clinical development had unique properties that would make for a much more dynamic and competitive landscape. We modeled Amylin's weekly formulation of exenatide with the greatest revenue potential, reaching \$3 billion in worldwide sales by 2016.

Two factors have significantly changed our outlook for the glp-1 analogs over the last seven months. First, the FDA approved Novo Nordisk's Victoza (liraglutide) eight months earlier than we had modeled. We had expected the risk of thyroid cancer to lead to a request for additional pre-market follow-up of trial patients.

Second, phase III trial data began to emerge late last year for Roche's taspoglutide, and it has become clear that the drug can be a strong competitor to the other glp-1s. Similar to both exenatide LAR and Glaxo's Syncria (albiglutide), taspoglutide is a weekly formulation of an injectible glp-1 analog. The strengths of the taspoglutide clinical development program are the subject of a separate note published today by *inThought*.

Tapoglutide is now on track to be approved in the U.S. in early 2012, between the approvals of exenatide LAR and Syncria. Its robust clinical trial program will put it in position to challenge the established Byetta franchise and significantly outperform Syncria.

Victoza, a daily glp-1 injection, will have more time than we had forecast to get a foothold in the market. Victoza is already outperforming the twice-daily Byetta in Europe. Still, Victoza will have a difficult time once the weekly version of the glp-1s are available, and sales trail off from a 2012 peak of \$2 billion worldwide to \$1.3 billion by 2017 in our model.

The FDA approval of Victoza does not change our outlook for the timing or likelihood of FDA approval

of exenatide LAR. Our *inThought* Approvability Index score is 82%(C) for exenatide LAR (essentially the same likelihood of approval as taspoglutide, which has an 83%[A]), and we continue to forecast a moderate delay in FDA approval, with exenatide LAR hitting the U.S. market in June 2011.

Byetta and its weekly formulation continue to be the market leaders in our model because they will combine strong clinical data with several years of real-world experience. Still, revenue potential of the franchise is significantly lowered by the one-two punch of the near-term competition with Victoza and the longer-term competition with taspoglutide.

Figures 1 and 3 detail the U.S. and worldwide revenue outlook for the glp-1 agents.

We expect the glp-1 model to continue to be dynamic. Phase III data for taspoglutide and Syncria, the timing of FDA approval for several agents, and real-world factors such as injection site reactions and needle size will have an important impact on the success of the various drugs.

## No Surprises for the DPP4s

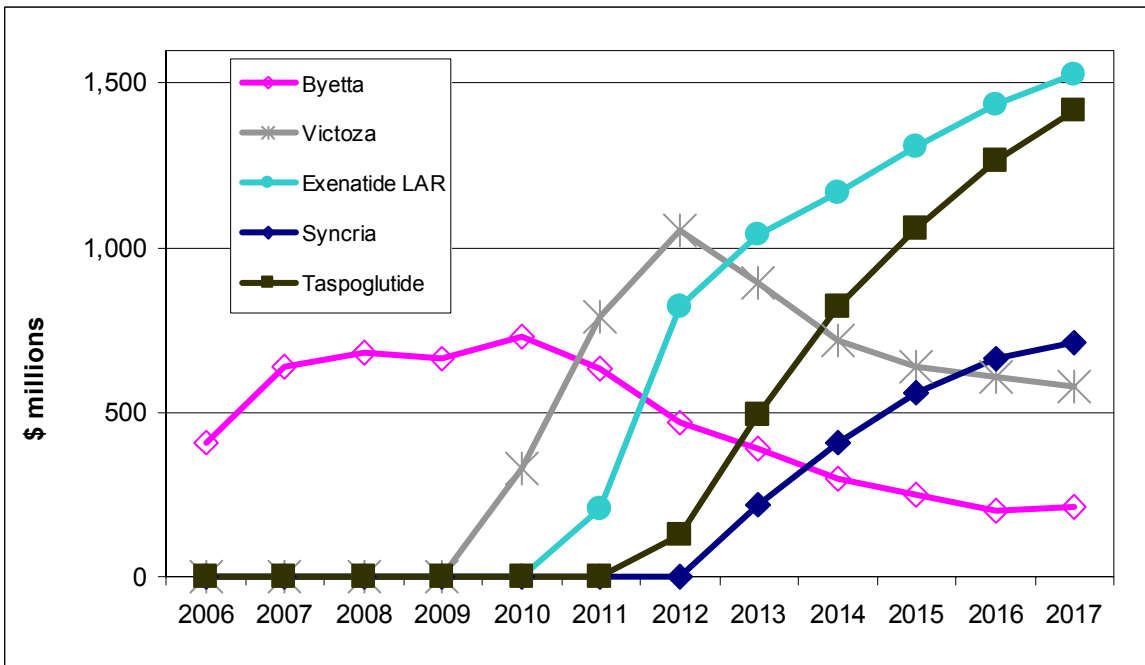
The only changes to our DPP4 outlook relate to the actual sales trends of Januvia and Onglyza. Sales of Januvia (and its combination product Janumet) continue to be robust, while Onglyza has gotten off to an even slower start than we projected before its U.S. launch five months ago.

We continue to believe that Januvia, Onglyza, and other DPP4s in clinical development are clinically indistinct, and will need to compete on price or other incentives rather than efficacy, safety, or convenience. Figures 2 and 4 detail the U.S. and worldwide revenue outlook for the three lead DPP4 inhibitors.

## Treatment of Type II Diabetes

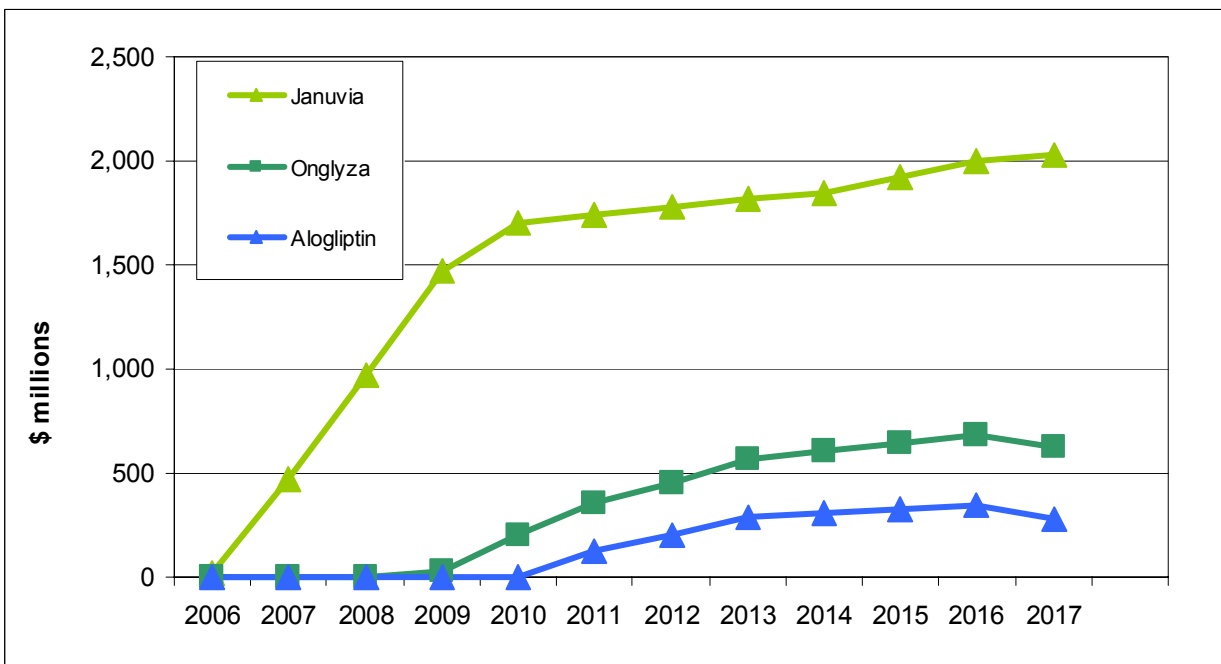
Our thesis that both DPP4s and glp-1s will be important therapies for type II diabetes remains intact. We expect both classes of drugs to be successful, with accelerating use over the next decade. Figure 5 shows that our model predicts similar numbers of patients treated with each of the two drug classes. Although the number of glp-1 recipients appears to exceed the number of DPP4 recipients in 2016 and 2017, it is likely that several additional DPP4 inhibitors not currently in our model will be on the market by that point.

Figure 1: U.S. glp-1 Revenue



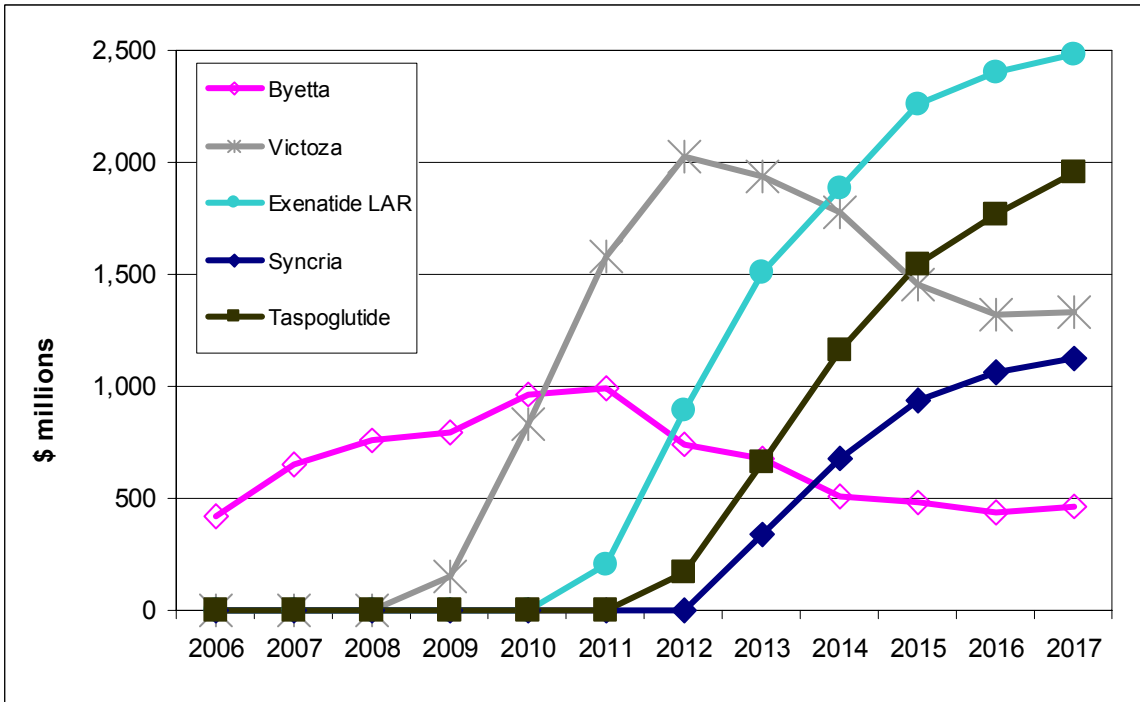
Source: inThought estimates, company reports, WK Healthcare Analytics data

Figure 2: U.S. DPP4 Revenue



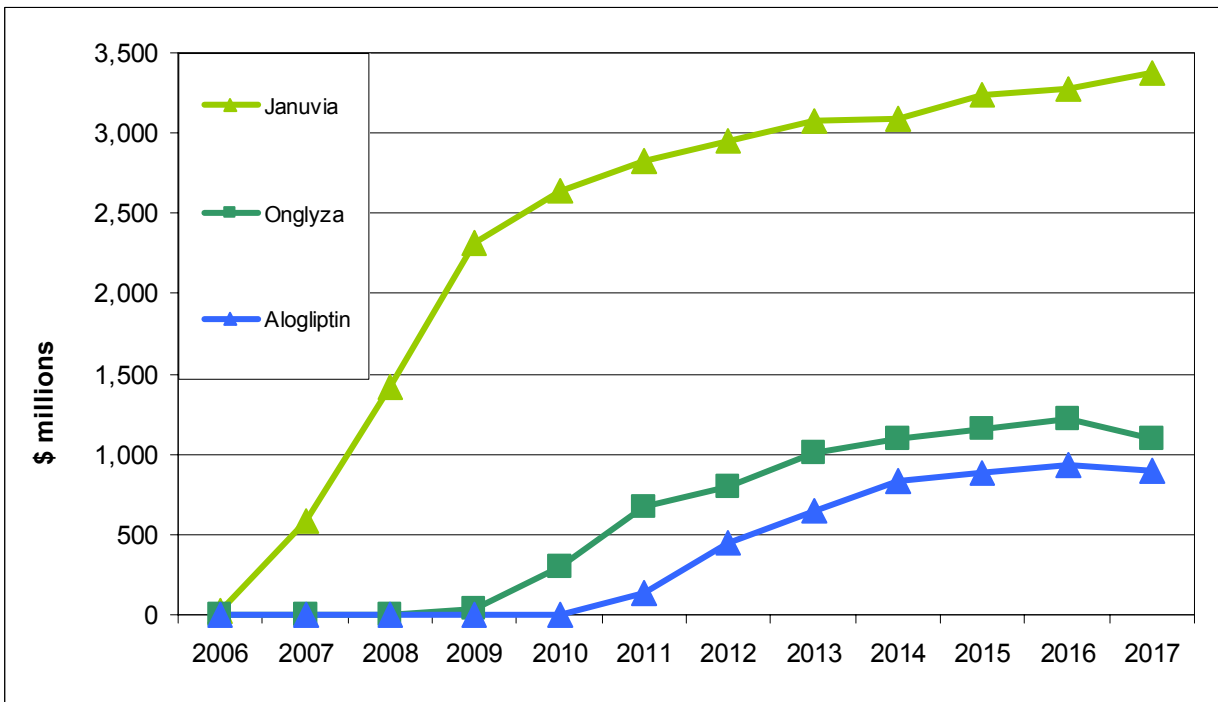
Source: inThought estimates, company reports, WK Healthcare Analytics data

Figure 3: Worldwide glp-1 Revenue



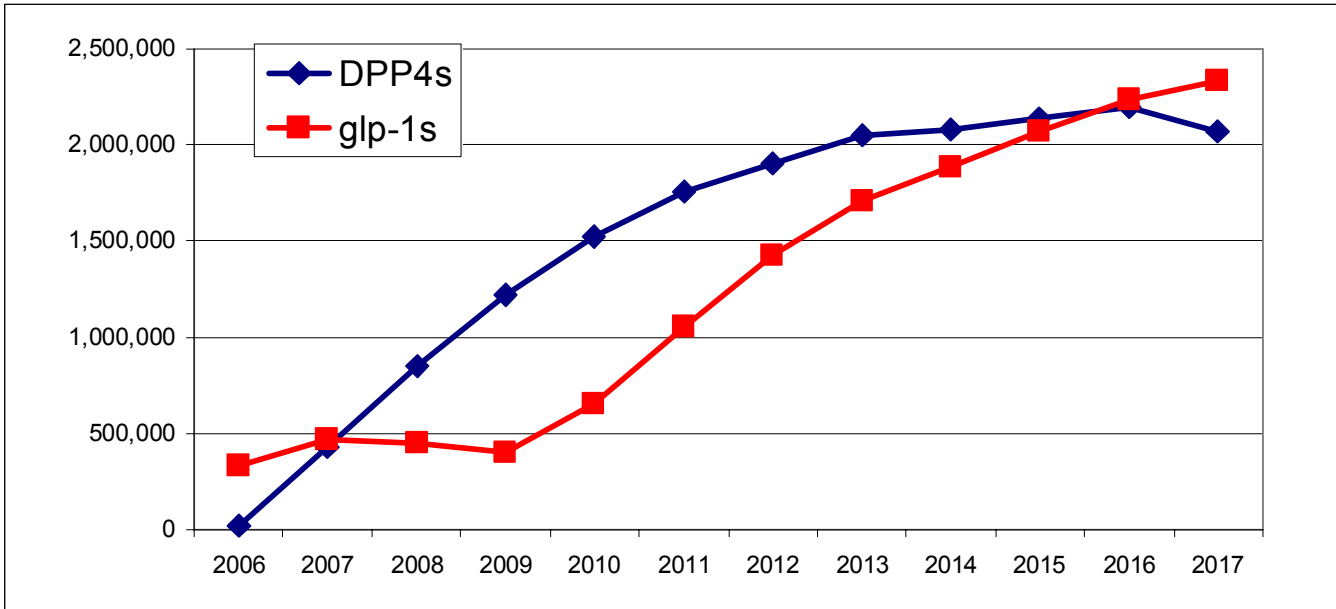
Source: inThought estimates, company reports, WK Healthcare Analytics data

Figure 4: Worldwide DPP4 Revenue



Source: inThought estimates, company reports, WK Healthcare Analytics data

**Figure 5: Number of U.S. Patients Treated with DPP4s and glp-1s**



Source: inThought estimates, WK Healthcare Analytics data, and company reports.

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