

## Lyrica Improves Environmental Performance



Pfizer scientists and professors at [Rowan University](#) in Glassboro, New Jersey, are applying Green Chemistry innovation that taps into nature's own chemical catalysts (enzymes) through biocatalysis to manufacture [Lyrica](#) (pregabalin) to great success.

The award-winning project to reduce the environmental footprint of the pregabalin generation process is projected to save an estimated 200,000 metric tons of chemical waste and an estimated 3 million tons of CO<sub>2</sub> emissions from 2007-2020 (note, however, that this chemical waste and CO<sub>2</sub> emissions savings is a projection and could vary depending on production volumes and other factors).

Pfizer scientists discovered that using enzymes to synthesize pregabalin instead of chemical inputs significantly reduced emissions and energy use. However, the manufacture of solvents, or key raw materials used in this new process, was made outside of the company. This made it difficult to get a complete picture of the impact of this change. To fully understand the savings, therefore, a full Life Cycle Assessment was required. This assessment would also point the way for further environmental efficiencies.

A cradle-to-gate analysis of Pfizer's new process by the Rowan professors revealed that the majority of CO<sub>2</sub> emissions were generated during the manufacture of raw materials. In particular, they found that the manufacture of the CNDE (cyano diester) starting material accounted for 40 percent of the carbon footprint.

The partnership between the Pfizer scientists and university professors demonstrates that reducing chemical inputs and by-products during drug development and manufacturing produces impressive environmental footprint reductions.