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PIRAMAL R&D -
DESIGNING
NEW ROUTES
TO SUCCESS

OPPORTUNITY



The original customer route needed to be optimized to improve the process efficiency and economics resulting into greater value to the customer

HOW PIRAMAL HELPED?

With support from the process development team comprising of >150 process chemists;

- Piramal improvised the customer route to develop a 1st generation route resulting into reduced RMC
- To further improve the COGS, a new and more efficient 2nd generation route was developed using chemo-catalysis
- Piramal R&D developed a highly stable catalyst to convert the 1st generation chemical resolution route into a asymmetric synthesis-based route

KEY OUTCOMES

The new route is robust, shorter, greener, gives higher yields and further reduction in RMC and PMI

DEVELOPING INNOVATIVE ROUTES TO INCREASE EFFICIENCY & IMPROVE OVERALL OUTCOMES

1st Generation Process



Chemical Resolution

- Customer route used chemical resolution
- Piramal optimized the original customer route to make it more efficient
- 4 step process

2nd Generation Process



B* is chiral intermediate

Asymmetric Synthesis

- Piramal devised a chiral, asymmetric synthetic route
- A highly stable catalyst was developed
- New route is shorter (2 step process)

Key Outcomes**



REDUCED
BY 50%



CYCLE TIME

REDUCED
BY 28%



% YIELD

IMPROVED
BY 58%



PROCESS MASS
INTENSITY
(PMI)

REDUCED
BY 61%

**based on lab studies

Piramal devised a greener route using chemo-catalysis thereby improving overall process economics and creating greater value for the customer



Piramal Pharma Solutions is a contract development and manufacturing organization (CDMO), offering end-to-end development and manufacturing solutions across the drug life cycle. We serve our clients through a globally integrated network of facilities in North America, Europe and Asia. This enables us to offer a comprehensive range of services including Drug Discovery Solutions, Process & Pharmaceutical Development services, Clinical Trial Supplies and Commercial supply of APIs and Finished dosage forms. We also offer specialized services like development and manufacture of Highly Potent APIs, Antibody Drug Conjugation and are well versed in technologies such as Bio-catalysis, Route Scouting etc. Our capability as an integrated service provider & experience with various technologies enables us to serve Innovator and Generic companies worldwide.



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