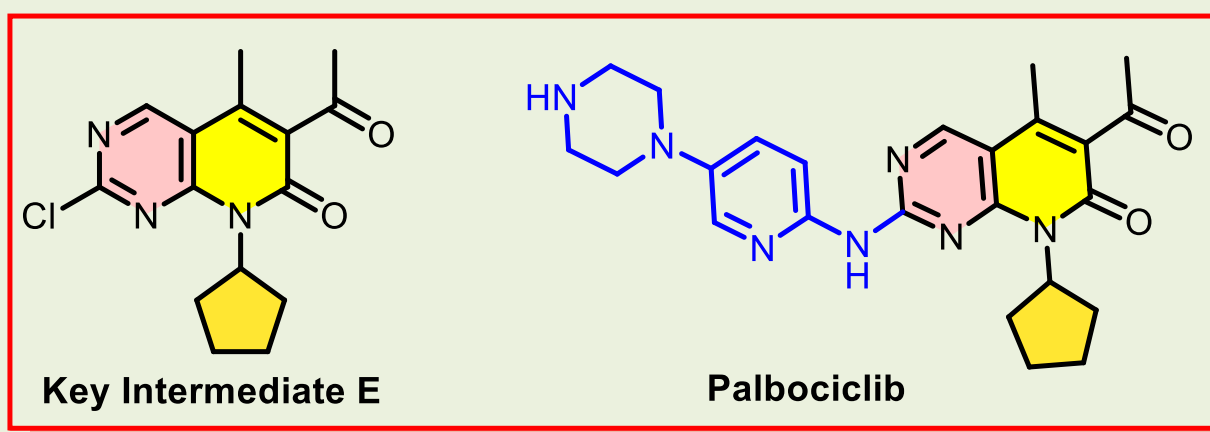




Process for 6-acetyl-8-cyclopentyl-5-methyl-2-substituent-pyrido[2,3-d]pyrimidin-7(8H)-one in the manufacture of Palbociclib

INTRODUCTION: CSIR-IICB has developed an efficient, safe, cost-effective, and industry-friendly process for the preparation of 6-acetyl-2-chloro-8-cyclopentyl-5-methylpyrido[2,3-d]pyrimidin-7(8H)-one (E), required for the synthesis of Palbociclib, a key intermediate for the total synthesis of Palbociclib, a cyclin dependent kinase (CDK4 /6) inhibitor and used for the first line treatment of advanced breast cancer of estrogen receptor positive (ER +) and human epidermal growth factor receptor 2 negative (HER2 -).



CHALLENGE/APPLICATION DOMAIN:

IICB has developed an environmentally friendly and cost-effective process using inexpensive reagents.

- ✓ None of the expensive Pd and Sn or hazardous reagents like Bromine were employed in this synthetic process.
- ✓ Environmentally friendly and easily available, cost-effective reagents and reactants have been used to make the key 6-acetyl intermediate (E), required for Palbociclib
- ✓ In our quest to enhance the efficiency and practicality of this reaction, we've uncovered a valuable process; this newly devised process offers a straightforward and achievable alternative, boasting advantages such as low cost, high yield, and suitability for large-scale industrial production.

OPPORTUNITY: Competing technology is not available at present, and Pharma and the fine chemical industry can employ this cost-effective IICB- process for palbociclib, an anticancer drug.

STAGE OF TECHNOLOGY DEVELOPMENT: TRL 4: Ready for transfer

PROJECT INVESTIGATORS: Dr. Indubhusan Deb, Moumita Saha, Koushik Naskar, Writhabrata Sarkar

FUNDING: CSIR

REFERENCES/ PATENTS : Patent Number: IN 202511018215: 0035NF2025 0035NF2025; Dated: 06-Feb-2025

We are seeking an industry partner for technology transfer

Collaborating Institute/Company if any (pls indicate if a separate MoU/agreement is in place.):

None.