

## CARBONYLATION / C-C & C-N COUPLING

We extensively address the specific needs of the pharmaceutical, food, cosmetics, agrochemicals and specialty chemicals industries with our capabilities in Transition Metal Catalysis (TMC). Complex active pharmaceutical ingredients (API's) are often stereochemically demanding: use of modern synthetic methods such as TMC are key for cost effective and timely manufacturing. The CDMO Division of KD Pharma is well equipped for the realization of your TMC projects.



Defined by you.  
Scale-up by us.™



## Benefits of Transition Metal Catalysis:

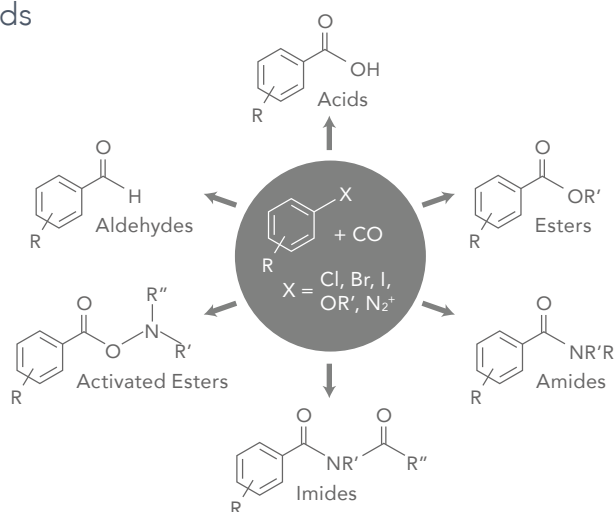
- Synthesis of complex molecules
- Cost efficient multistep synthesis
- Mild reaction conditions
- Short cuts in synthesis routes
- Functional group tolerance
- High selectivity / high yield
- Direct access to enantiopure compounds



Transition Metal Catalysis

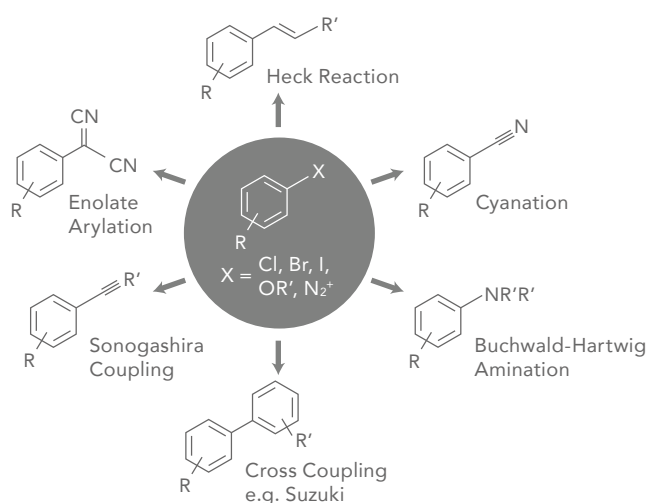
## Example: Carbonylation

- Short cuts to carbonyl compounds
- No need for protection
- Different functional groups accessible
- Different substrate classes possible



## Example: C-C / C-N Coupling reactions

- Broad range of important chemical structures accessible
- Short cuts in syntheses
- Different substrate classes
- Different leaving groups possible: Ar-Cl, Ar-Br, Ar-I, Ar-OR, Ar-N<sub>2</sub><sup>+</sup>



Let's discuss your specific manufacturing challenges today!

Contact us at: [CDMO@kdpharmagroup.com](mailto:CDMO@kdpharmagroup.com)

