

# One-pot Synthesis of pyrrolo[3,4-*b*]pyridin-5-ones by MCR: the Ugi–Zhu three component reaction



**Professor Eduardo González-Zamora**

Departamento de Química  
Universidad Autónoma Metropolitana-Iztapalapa  
México

The rapid generation of molecular complexity and diversity from simple and readily accessible starting materials is a contemporary research theme in the practice of modern organic synthesis. The combination of a multicomponent reaction with an efficient post-MCR process, typically a ring-forming reaction, has proven to be a powerful tool for the synthesis of highly functionalized polyheterocyclic compounds. A variety of reactions including condensations, ring-closure metathesis, cycloadditions, macrolactonizations, intramolecular  $S_NAr$  reaction, etc. have been combined with an isonitrile based multicomponent reaction (I-MCR) for the construction of complex scaffolds of high interest in several disciplines of science and technology like medicinal chemistry, biochemistry and cellular biology, materials and polymer sciences, agrochemistry, and optics.

This presentation summarizes some of our most recent contributions in this area using the Ugi–Zhu three component reaction coupled to cascade processes. Several strategies with high atomic economy to the synthesis of highly functionalized polyheterocyclic compounds are discussed.

Synthesis of Polyheterocycles via the Ugi-Zhu-3CR and *in silico* - *in vitro* assays against Human SARS-CoV-2

