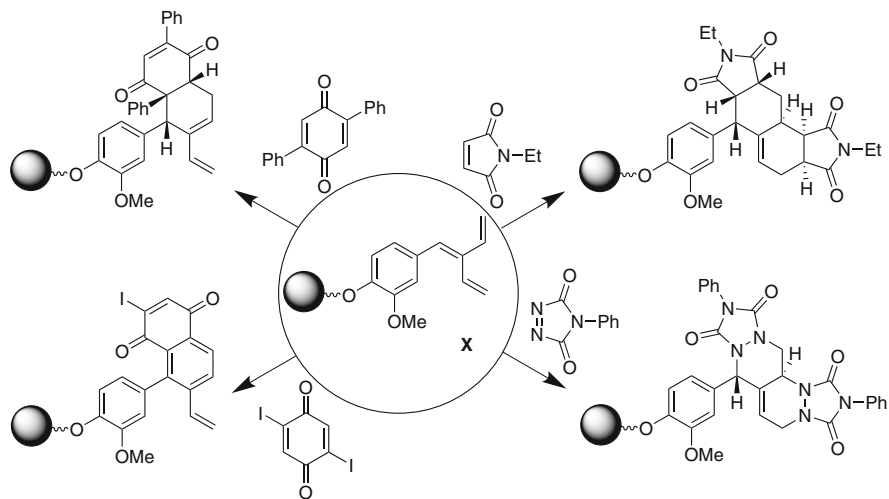
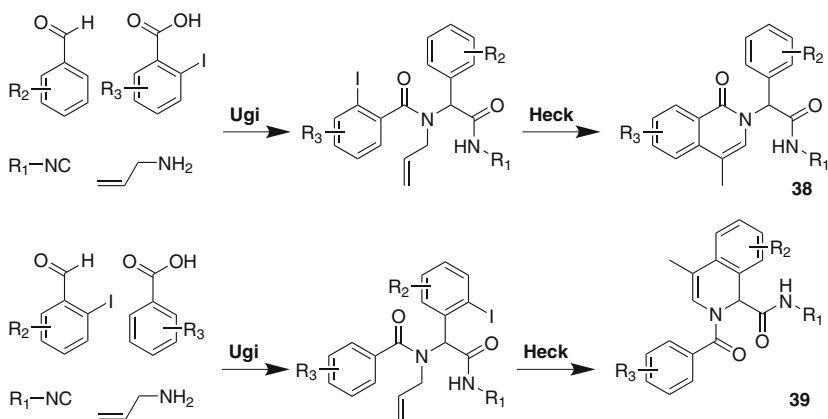


product of a certain reaction can then be used as substrate for the next complexity-generating reaction as is illustrated in Fig. 22 (Burke and Schreiber 2004).

With respect to the rapid generation of diversity, the use of multicomponent reactions such as the Ugi reaction (Ugi 1997) have proven very useful in constructing varied scaffolds, as illustrated by the group of Yang, who synthesized two distinct isoquinoline scaffolds **38** and **39** using an Ugi reaction followed by a Heck intramolecular cross coupling (Fig. 23).



**Fig. 22** DOS approach to generate various complex scaffolds from trienophenol **37** using similar reagents and similar reaction types (Kwon et al. 2002)



**Fig. 23** Ugi multicomponent reaction between an amine, cyanide, aldehyde, and carboxylic acid to yield the substituted amino acids, which in turn are cyclized using a Heck palladium-mediated cross coupling (Xiang et al. 2004)