

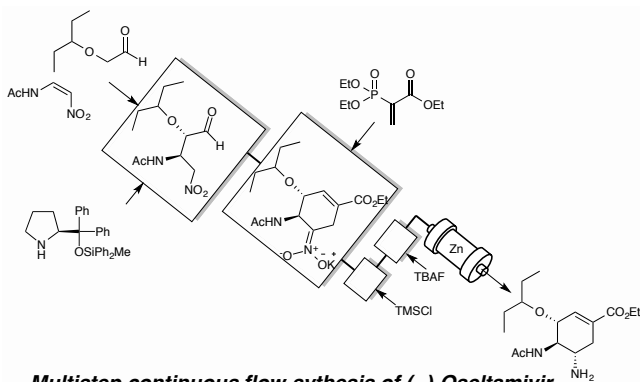
# Pot Economy and Time Economy in the Synthesis of Biologically Active Molecules

Yujiro Hayashi

Department of Chemistry, Graduate School of Science, Tohoku University  
yhayashi@m.tohoku.ac.jp

One-pot operation is an effective method for both carrying out several transformations and forming several bonds in a single-pot, while at the same time cutting out several purifications, minimizing chemical waste generation, and saving time. Thus, a one-pot reaction can be not only efficient, but also green and environmentally friendly, and “pot-economy” should be considered in planning a synthesis.<sup>[1]</sup>

We have been investigating to make biologically active molecules through a small number of pots, using organocatalyst-mediated asymmetric reaction as a key step. In this talk, we will describe 60 minutes total synthesis of (–)-oseltamivir for “time-economy”,<sup>[2]</sup> and the multistep one continuous-flow synthesis of the same molecule.<sup>[3]</sup> We will also present our recent five pot synthesis of estradiol methyl ether.<sup>[4]</sup>



**Multistep continuous flow synthesis of (–)-Oseltamivir**

## References

1. Y. Hayashi, *Chem. Sci.* **2016**, 7, 866.
2. Y. Hayashi, S. Ogasawara, *Org. Lett.* **2016**, 18, 3426.
3. S. Ogasawara, Y. Hayashi, *Synthesis* **2017**, 49, 424.
4. Y. Hayashi, S. Koshino, K. Ojima, E. Kwon, *Angew. Chem. Int. Ed.* **2017**, 56, 11812.