

## The challenge to be innovative in the Pharma industry.

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There is common trait in the pharmaceutical industry, mainly related to the strict timelines of the research and development projects, which is highly detrimental to the possibility of innovation. The risk to mismatch a project milestone is often suggesting to the researchers a conservative approach.

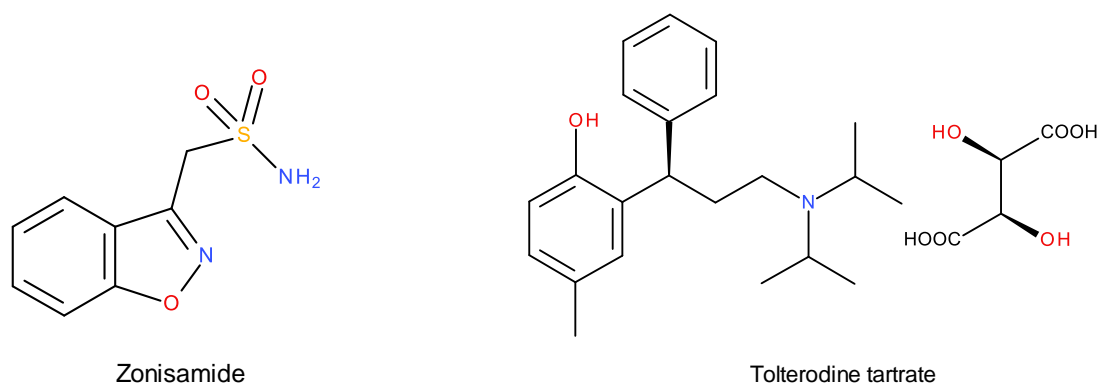
As a matter of fact, the manufacturers of generic API very often adopt the same route of synthesis designed by the originator, even if it is usually 20 years old. On the other side, the CDMOs that are performing custom syntheses, are often scaling up their processes following the same approach designed by the medicinal chemistry, regardless of its efficiency and productivity.

However, luckily, sometimes there are some constrains (fake or valid patents, unexpected issues, an illuminate manager) which force the researchers to find an alternative way to solve the problem.

Those are the true opportunities to be innovative.

In this lecture I would like to introduce some examples coming from my experience, where this desirable situation happened, to show that very often the achieved technical result exceeded the expectation (regardless of the commercial result, which is another story).

And surely those are the projects a chemist is prouder of.



**Figure 1.** Representative examples

### References

[1] Gabriele Razzetti, Simone Mantegazza, Roberto Rossi, Pietro Allegrini, "A process for the preparation of tolterodine" **EP 1.693.361**

[2] Gabriele Razzetti, Simone Mantegazza, Graziano Castaldi, Pietro Allegrini, Vittorio Lucchini, Alberto Bologna; "Process for the preparation of benzo [d] isoxazol-3-yl-methanesulfonic acid and the intermediates thereof" **US 7,291,742**