
Improved Luciferins for Oplophorus-derived Luciferase

Eloi Coutant^{*†1}, Glwadys Gagnot^{‡2,3}, Vincent Hervin^{2,4}, Sophie Goyard², Thierry Rose⁵, Yves Jacob², Valérie Choumet², Essia Belarbi², and Yves Janin^{§2}

¹Institut Pasteur [Paris] – Institut Pasteur [Paris] : UMR3523 – 25-28, rue du docteur Roux, 75724 Paris cedex 15, France

²Institut Pasteur [Paris] – Institut Pasteur [Paris] – 25-28, rue du docteur Roux, 75724 Paris cedex 15, France

³Université Paris Descartes - Paris 5 (UPD5) – Université Paris Descartes - Paris 5 – 12, rue de l'École de Médecine - 75270 Paris cedex 06, France

⁴Université d'Orléans (UO) – Université d'Orléans – Château de la Source - Avenue du Parc Floral - BP 6749 - 45067 Orléans cedex 2, France

⁵Groupe Réseaux et Signalisation (CITECH) – Institut Pasteur – 25-28 rue du Docteur Roux 75724 Paris, France

Abstract

In the past decades, marine bioluminescent systems have been used increasingly by biologists and biochemists as tools for a large number of investigations such as protein-protein interactions, *in cellulo* or *in vivo* protein localisation using microscopy as well as high-throughput screenings.

We have developed in the laboratory an original and robust synthetic access for marine luciferins analogues and we have prepared more than one hundred previously unreported luciferins. Among them, some exhibit a bioluminescent signal up to 2.5 times brighter than the best luciferin available on the market, such improvements allowing a significant sensitivity improvements for techniques using these systems.

Depending on the state of advancement of our patent application process, these new luciferins will be disclosed along with some illustrations of their uses.

Keywords: nanoluc, nanokaz, synthesis, imidazopyrazinones, luciferins

*Speaker

†Corresponding author:

‡Corresponding author: glwadys.gagnot@pasteur.fr

§Corresponding author: yves.janin@pasteur.fr