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To Whom it May Concern

I am pleased to write this letter of reference on behalf of **Dr. Felipe A. Millacura**.

Dr. Millacura has recently completed (or is at the brink of completing) his PhD studies in the Synthetic Biology & Microbial Biotechnology group of Prof. Christopher French at Edinburgh University (UK) on the topic of *"Modular Cell-free systems using an Adaptable DNA-Logic as core processing machinery"* involving the development of new genetic circuits and building novel interfaces between Computing and Biology. I was not involved in this project so I cannot comment on the contents of his thesis project but going briefly through the two first-authored papers forming the basis of his PhD (one published in 2019 in *Frontiers in Bioengineering and Biotechnology*, and one currently available on the bioRxiv pre-print server and submitted to *NAR Synthetic Biology* – see his reference list) it is clear to me that he has successfully entered a new and exciting branch of biological sciences, gathering deep insights and mastering many skills essential in the field of Synthetic Biology.

I would not have expected less when he told me in late 2016 that he was admitted to the PhD program at Edinburgh University. Indeed, the year before I had the pleasure to host Felipe as an exchange student in my group at the Belgian Nuclear Research Center (SCKCEN) to work on the metabolic capabilities and heavy metal resistances in the soil bacterium *Cupriavidus metallidurans*, studying two strains CH34 and MSR33, the latter being a CH34 derivative but with an extra plasmid carrying broad-spectrum mercury resistance (*mer*) genes. This work involved the full-genome sequencing of strain MSR33 and comparing its sequence and its basal expression profile to those of strain CH34. Other tasks included the construction of expression plasmids and a range of genetic and biochemical assays. During the 6 months of his stay at SCKCEN he was able to perform a massive amount of experiments and analyses and once back home in Antofagasta, Chile, he provided additional material by courier for further experimentation at SCKCEN and continued his analyses. All this eventually led to an impressive publication in the MDPI scientific journal *"Genes"* (Millacura et al., 2018 – see his reference list). Felipe's diligence, enthusiasm, and perseverance were right out exemplary and I have to rate his overall performance as one of the very best I experienced among my students over the past 29 years.

During his stay at SCKCEN and also later in 2016 when I visited CICITEM and the University of Antofagasta and from the many communications in frame of the 2018 publication, Felipe always showed an excellent understanding of the scientific challenges and questions at hand and I truly enjoyed the many scientific discussions with him. He has a sharp mind, is highly motivated and dedicated, thinks ahead, and is able to work fully independently. His social abilities are excellent and during his stay at SCKCEN he maintained very good relations with everyone in the lab. From a quick glance on his updated CV it occurs to me that he has, fully in line with his PhD studies, endeavored to improve his computer literacy, including programming (Python, R, Java ..) and data management (SQL), either via courses during his PhD at Edinburgh University or on-line elsewhere, and has gained professional experience in various remote roles e.g. as Data Analysis Session Lead at the on-line training platform Udacity. I also notice that he took the opportunity to take on some teaching duties at college and university level demonstrating his interest in sharing knowledge and his potential and willingness to move into an educational role at academic level.

In conclusion, I am certain that Dr. Felipe Millacura, thanks to his broad technical, scientific, and social abilities as well as his multidisciplinary education and interests, would fit in very nicely in any research group or academic environment, and I can without a speck of doubt on my mind highly recommend him as a valuable candidate to any recruiter or reviewing board.

I wish Dr. Millacura a very successful continuation of his career!



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