Session Frontiers in Medicine and Public Policy Changes I and II. Current and future challenges of public health policies: Expectations facing the G20 summit

Adalberto Vieyra

Carlos Chagas Filho Institute of Biophysics and National Center for Structural Biology and Bioimaging/CENABIO, Federal University of Rio de Janeiro. Graduate Program of Translational Biomedicine/BIOTRANS, Grande Rio University

The 7th edition Brazil-China Innovation Dialogue: Technology and Development, a free meeting of the V National Conference on Science, Technology, and Innovation and as a side event of G20 Engagement Group – T20 (Think-Tanks), will allow us to revisit – at least in the area of Life Sciences – different topics from the I Genomes Brazil International Summit held just over two years ago. Access to Advanced Therapy Medicinal Products/ATMPs stands out among these topics. However, I believe that it will also provide an opportunity to reflect on some concerns that reverberate in Brazil and in many countries around the world that could be summarized in the following questions: (I) Are there less expensive frontiers (and avenues) for the medicine — and public health challenges — beyond those proposed by the big companies (and sometimes by us)?; (II) Are there forgotten Products of Advanced Therapies nowadays? Both questions are certainly related because the affirmative answer to the second question strengthens the positive answer to the first. I give an example of extracellular vesicles (EVs) secreted by different types of cells, such as induced pluripotency stem cells (iPSC) or mesenchymal cells. I agree that the effectiveness of products with defined targets is superlative compared to that of more general-acting therapies and, in many cases, without precise targets. However, a recent editorial in the Journal of Extracellular Vesicles (Camussi G & Lötvall J. The importance of controlled clinical trials with extracellular vesicles. J Extracell Vesicles.12:e12347,2023) brings us the vision of the successful use of vesicles in clinical trials. We add that this success may be even more robust since the intravesicular content can be changed specifically by modifying the culture conditions of the cells in

secretion processes, as we demonstrated a short time ago (Collino et al. Cell Physiol Biochem. 52:1463–1483,2019; Lopes et al. Int J Mol Sci. 23:2906,2022). This perspective is expanded in the case of EVs secreted by patient-specific iPSC due to the potential to reconstruct the natural history of a disease and identify possible targets for ATMPs. I know that animal-to-human translation of cell and acellular therapies have not had encouraging results until now. However, is this a reason not to continue? Here, I consider that the answer is NO, which I complement with the firm position that the G20 Engagement Group – T20 (Think-Tanks) should recommend to the entire G20, the continuity of support and financing for programs and projects that, after international evaluation, present results with significant experimental and conceptual contributions.