

Editorial

How is translational medicine on autoimmune diseases in Colombia?



¿Cómo está la medicina traslacional sobre enfermedades autoinmunes en Colombia?

Autoimmune diseases are pathophysiologically complex and multifactorial medical conditions that, even today have a big pending in relation to their clinical (diagnosis, prognosis, treatment) and basic (etiopathogenesis) understanding. Even though the practice of modern rheumatology has been enriched by the progressive arrival of more advanced methods of cellular and molecular studies, there are still shortcomings in the knowledge of the etiopathogenic processes of the diseases.

It is also true that the more is known about etiopathogenic phenomena and mechanisms of autoimmune diseases, the diagnostic and therapeutic arsenal is not only widened, but the need to continue learning stands out, since with the advent of biological drugs, new nosological conditions, for example, immune-mediated adverse events related to biological drugs such as checkpoint inhibitors have arisen.

For all these reasons, an imperative need for information from the basic sciences arises, that clarifies many still unknown aspects of autoimmune diseases and directly brings basic knowledge closer to clinical practice.¹ This is how translational medicine and its multiomic approaches arise, which in their fundamental structure (Fig. 1) get to strengthen knowledge in rheumatology and its clinical practice, given that its objective is to “transfer” directly and preferentially what is found in basic biological studies to the field of clinical medicine, being applicable not only to the treatment and diagnosis, but also to the prognosis and precision medicine, despite the research challenges to which this science is compelled (Fig. 2). Then, rheumatology has a great opportunity to benefit from translational medicine and its wide omic terrain (genomic, epigenomic, transcriptomic,

proteomic, metabolomic, microbiomic), given the possible answers they can offer to the knowledge gaps of the specialty.²

The large databases of global human genomic studies have seen how relevant populations such as the Latin American or African, and types of diseases such as autoimmune, lack of a significant representation in the studies, therefore, an effort must be made to solve this shortcoming.^{3,4}

It is important to generate local own knowledge in relation to genetics and omic sciences, since Colombia is a country with a diverse ethnic population composition and mainly constituted by 3 groups: Amerindians, European immigrants and Afrodescendants.⁵ For this reason, in this issue of the journal we highlight two Colombian studies that provide knowledge in the field of omic sciences (genetics/genomics) and autoimmune diseases.

Thanks to the contribution of Arévalo-Caro et al., it has been determined that in Colombia, as in other latitudes, the genetic association between the alleles of the HLA-DRB1 gene known as “shared epitope” and rheumatoid arthritis (RA) in mestizo subjects of Bogota presented an equivalence of 100%, highlighting the presence of HLA-DB1 alleles 14:02, 04:04, 08:02, 04:05 and 10:01 in the patients with RA and pointing out the higher frequency of the shared epitope in subjects with RA and anti-cyclic citrullinated peptide antibodies. On the other hand, Garavito et al. stated that the polymorphisms of the vitamin D receptor gene, such as the VDR rs2228570 and the ACCA haplotype of the TaqI, ApaI, BsmI and FokI polymorphisms, were associated with an increased risk of systemic lupus erythematosus in a sample of adolescent subjects from the Colombian Caribbean.^{6,7}

Like the academicians, leaders and researchers that usually are immersed, the specialists in the different clinical areas must try to overcome the barriers that condition the conduct of research at the level of translational medicine. Fortunately,

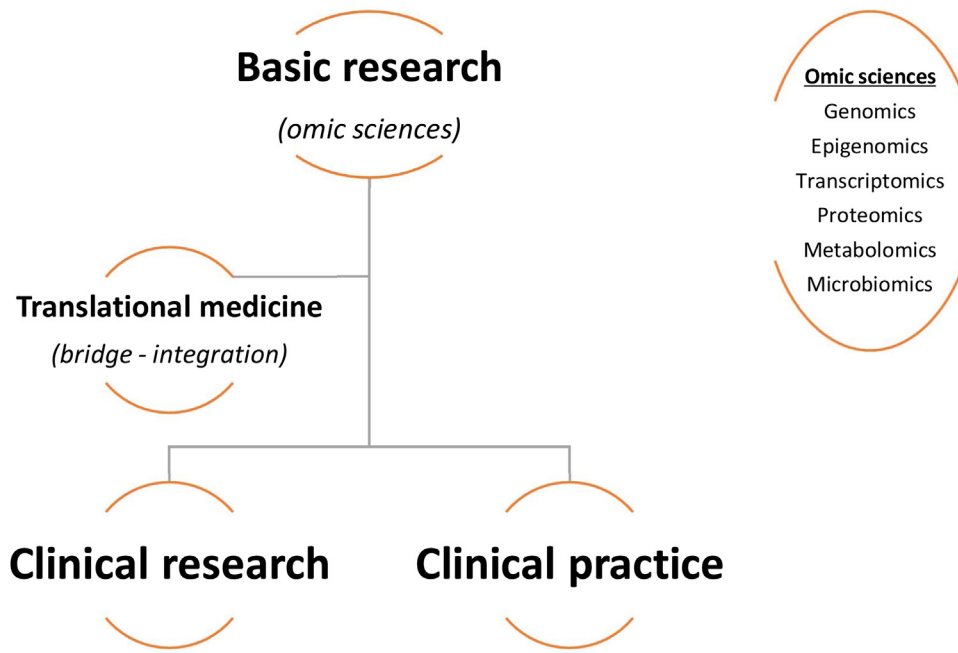


Fig. 1 – Integrative organization model of translational medicine.

Source: own elaboration.

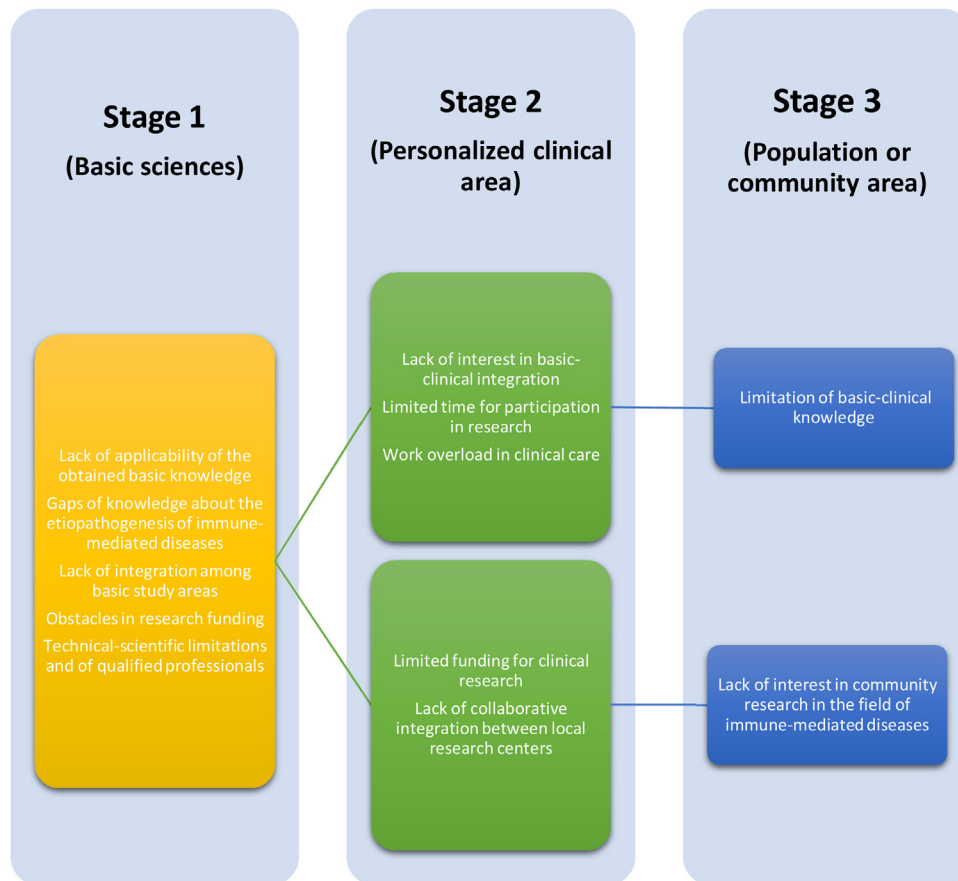


Fig. 2 – Operational challenges in translational research in the field of rheumatology.

Source: own elaboration.

we already visualize groups that fully comply with this principle and we invite everyone to join this cause to overcome the lag that we have at the local and regional level compared with the countries of the First World.

REFERENCES

1. Seyhan AA. Lost in translation: the valley of death across preclinical and clinical divide – identification of problems and overcoming obstacles. *Transl Med Commun.* 2019;4:18, <http://dx.doi.org/10.1186/s41231-019-0050-7>.
2. Hasin Y, Seldin M, Lusis A. Multi-omics approaches to disease. *Genome Biol.* 2017;18:83, <http://dx.doi.org/10.1186/s13059-017-1215-1>.
3. Landry LG, Ali N, Williams DR, Rehm HL, Bonham VL. Lack of diversity in genomic databases is a barrier to translating precision medicine research into practice. *Health Aff (Millwood).* 2018;37:780–5, <http://dx.doi.org/10.1377/hlthaff.2017.1595>.
4. Atutornu J, Milne R, Costa A, atch C, Middleton A. Towards equitable and trustworthy genomics research. *eBioMedicine.* 2022;76:103879, <http://dx.doi.org/10.1016/j.ebiom.2022.103879>.
5. De Castro M, Marín-Restrepo C. Genetics and genomic medicine in Colombia. *Mol Genet Genomic Med.* 2015;3:84–91.
6. Arévalo-Caro CM, Romero-Sánchez C, Yunis-Londoño JJ. Métodos de clasificación del epítotope compartido según Gregersen y de Vries permiten una adecuada caracterización de pacientes con artritis reumatoide en una población colombiana. *Rev Colomb Reumatol.* 2021, <http://dx.doi.org/10.1016/j.rcreu.2021.05.020>.
7. Garavito G, Fang L, Domínguez-Vargas A, Moreno-Woo A, López-Luch G, Iglesias A, et al. Asociación del polimorfismo FokI del gen VDR y lupus eritematoso sistémico en población adolescente del Caribe colombiano. *Rev Colomb Reumatol.* 2021, <http://dx.doi.org/10.1016/j.rcreu.2021.04.008>.

Jorge Lechuga-Ortiz, Gerardo Quintana-López*
Reumavance Research Group, Department of Internal Medicine,
Faculty of Medicine, Universidad Nacional de Colombia, Bogotá,
Colombia

*Corresponding author.

E-mail address: ge_quintana@yahoo.com

(G. Quintana-López).

2444-4405/© 2022 Asociación Colombiana de Reumatología.

Published by Elsevier España, S.L.U. All rights reserved.

<https://doi.org/10.1016/j.rcreu.2023.02.002>