

Título del Proyecto	<b>NanoBiCar: A novel immunotherapy for infectious diseases</b>
Nº de expediente asignado	101186252
Abstract	<p>"It is estimated that 20% of global mortality is associated with bacterial infections. The current treatment is based on the use of antibiotics, but nonspecific effects, difficulty in reaching intracellular bacteria (IC), and the generation of antimicrobial resistance limit its effectiveness. Tuberculosis (TB) is the leading cause of mortality due to a single infectious agent: Mycobacterium tuberculosis (Mtb). Multidrug-resistant TB (MDR-TB) is a major threat to global health security. A quarter of the population is latently infected with Mtb, many of them MDR strains, so preventing new cases of this growing reservoir is a priority. Immunotherapy is an alternative option, but its effectiveness is based on the immune response capacity of a compromised host. NanoBiCar's long-term vision is to revolutionize the current treatment of bacterial infections with a groundbreaking and innovative immunotherapeutic approach, overcoming many of the problems associated with treatment, with potential application beyond this field. Using TB as a proof of concept, universal infection markers will be used, identifying Mtb-infected cells (MIC) and extracellular bacteria (EC) in three immunotherapeutic platforms not tested in bacterial diseases. mRNAs encapsulated in lipid nanoparticles, will be used for the generation "in vivo" of T cells engineered with specific chimeric antigen receptors (CAR-T), bispecific T cell activators (BiTE) and for the expression of xenoantigens in MIC, to eliminate MIC, IC and EC bacteria. These immunotherapeutic methods are safe, economical, accessible, ready-to-use and specific, targeting latent/ acute/chronic infections, without generating resistance and suitable for use in high-burden, low-resource settings; effective regardless of the antibiotic resistance of the strain and its niche (IC or EC), the genetic background of the host and the degree of immunocompetence."</p>
Entidad Financiadora	UNION EUROPEA

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Enlaces:	