

Anti-Idiotypic Agonistic Antibodies: Candidates for the Role of Universal Remedy

Aliya K. Stanova

Department of Pathology and Laboratory of the Mosaic of Autoimmunity, Saint Petersburg State University, Russia

Abstract

Anti-idiotypic antibodies (anti-IDs) were discovered at the terribly starting of the twentieth century and have attracted attention of researchers for several years. Nowadays, there square measure 5 familiar styles of styles of, β , γ , ϵ , and δ . because of the power of internal-image associate degreedi-IDs to contend with associate degree substance for binding to protein and to change the life activity of an substance, anti-IDs became a target within the explore for new treatments of reaction sicknesses, cancer, and a few different diseases. during this review, we tend to summarize the info concerning anti-IDs that mimic the structural and practical properties of some bioregulators (autacoids, neurotransmitters, hormones, xenobiotics, and drugs) and value their potential medical applications. The system is probably ready to reproduce or a minimum of alter the results of any biologically active endogenous or exogenous immunogenic agent via the anti-idiotypic principle, and doubtless regulates a broad spectrum of cell functions within the body, being a sort of universal remedy or immunacea, by analogy to the legendary ancient deity of universal healing remedy (Πανάκεια, Panakeia in Greek) within the treatment and hindrance of diseases, probably as well as non-infectious physical and even hereditary ones.

Keywords:

anti-idiotypic antibodies; agonisticautoantibodies; autacoid; drug; hormone; neurochemical

Introduction

In 1900, London and Besredka incontestible the existence of physical antihemolysins. In fact, these were anti-idiotypic autoantibodies (anti-IDs) against hemolysins. The authors like a shot recommended their regulative role . abundant later experimental anti-IDs were obtained by Kryzhanovsky et al. (1960) and by Oudin (1963). In 1973, Lindenmann speculated that some anti-IDs might function homobodies or internal immunologic mirror pictures of acceptable antigens. The interest in anti-IDs began to increase with the proposal of the network theory of the system by Jerne in 1974. the most plan was that Ab will each acknowledge associate degree substance and successively even be recognized by another Ab towards its paratope. The mechanism of the formation of Jerne's network is that the following: associate degree substance stimulates the assembly of Abs (Ab1). The active centers of Ab1 square

measure recognized by the second category of Abs—anti-IDs (Ab2). In their flip, Ab2 is associate degree substance for the third category of Abs (Ab3)—anti-anti-IDs, and so on. The network finally seemed to be not endless, as a result of Ab3

is also identical or draw in their recognizing properties to Ab1. Autacoid-Like Anti-IDs

Under the term “autacoids” (from Greek: “autos” (self) and “acos” (relief, drug)), the medicine synonym finder suggests that the bioregulators of short distant native and zonal wireless action, produced, acting, and metabolized locally, as an example, inside inflammatory foci or in humor follicles

Conclusions

All these studies connected with anti-IDs established their potential as a strong tool not solely in immunologic assays however conjointly within the treatment of assorted diseases. Apparently, these square measure biological instruments active not solely inside the system however conjointly on the far side it, once targeted to physical cells. as an example, IDs are exploited as therapeutic immunogens in cancer treatment in 2 well-defined and clearly distinct contexts: (i) Directly as a tumor-specific target on membrane Ig-positive malignant B cells as a consequence of their clonotypic origin, and (ii) as a surrogate of tumor-associated substance (TAA) to induce specific immune responses. However, though many animal studies mistreatment anti-Id antibodies support their utility as cancer vaccines, human trials with being being were unsatisfactory and have failing in later part trials. Reasons for the failure of anti-Id vaccines against tumors square measure almost like the generalized failures of different cancer vaccines. one among the most important issues in cancer is that the complexness and nonuniformity of substance expression, because the antigens that square measure potential targets of T- and B-cells square measure multiple and endlessly flexible. However, this obstacle may well be overcome. The expertise of polyclonal associate degreedi-ID-based reagents in animal models in addition as an understanding of the response in humans lends to the proposition that polyclonal anti-ID vaccines are going to be simpler compared to monoclonal-based ones.

aliya.stanova@mail.ru