Stepan S Dzhimak et al., J Clin Cell Immunol 2017, 8:3(Suppl)
DOI: 10.4172/2155-9899-C1-036

Animal tissue-specific biomolecules influence on rats with cyclophosphamide-induced immunosuppression

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Statement of the Problem: Immune system dysfunction is pathological processes key aspect, as result we can see protective and adaptogenic immunity reactions activation and its depletion, leads to bacterial and viral infections. Modern immunoregulating drugs, mainly synthetic origin, cause pathogens resistance increase and lead to allergic reactions. One of the possible problem solutions is to obtaining immunocorrective natural drugs with directed action based on animal origin biomolecules. Peptides and proteins complex isolated from Sus Scrofa thymus, spleen, lymph nodes (TSL) (0.9% NaCl solution) studies were conducted. Deuterium depleted water (DDW) promotes maximum biomolecules extraction. Research purpose was to investigate protein-peptide compounds fractions isolated from the organs of the immune system Sus scrofa immunological activity *in vivo*.

Methodology & Theoretical Orientation: 58 rats (SPF) were injected with cyclophosphamide (triply, 75 mg/kg), after immunodeficiency model completed (12 days from first injection) animals were treated by: complex extract on DDW (TSL), TSL fractions less than 5 kDa (A), from 5 to 30 kDa (B), over 30 kDa (C). Findings: It has been revealed that TSL and B activate CD3 and CD4 differentiation and typing processes (CD3/CD4 shifted to larger side); increase T-lymphocytes and T-helpers content by reducing suppressors and killers; increase of cytokine factors production (Il-2, Il-4, Il-6, IgM, IgG) responsible for adaptive immune response; normalize granulocytes level, which against increased CD3 background indicates one of the immunity recovery stages. There also noted significant C1q and C4 level increase, which synergistically with a C5 and C3 level decrease indicate complementary cascade of activation reactions. Minimal therapeutic effect was noted in rats A and C.

Conclusion & Significance: Biomolecules (5-30 kDa), isolated from Sus Scrofa immune tissues by DDW extraction, showed obvious immunoactivating effect. Immunosuppression model revealed complementary system cascade faster activation and protective system cellular and molecular factors maximum reactivity while biomolecules treatment

Biography

Stepan Dzhimak is studying the role of low deuterium concentrations in drinking water on the living systems adaptive capabilities. In the experimental clinic-laboratory of biologically active substances of animal origin he is principal investigator of the project: Development of innovative natural adaptogenic stimulants of nonspecific immunity based on tissue-specific biomolecules

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