

"Biotechnology in Bavaria: profiles, portraits, perspectives - global partner"
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Multifactorial Diseases: Allergies, respiratory tract diseases, asthma

"In vivo assay" in the test tube - search for causes, diagnostics and therapy

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There are currently around 30 million people (37%) in Germany who suffer from allergies. If this sickness rate trend continues, the entire population of the world will be atopic in the year 2020. We are therefore dealing with what is by far the leading Public Disease No. 1. The treatment presently costs the German health system 40 to 45 billion Euro per year.

With our holistic concept for the early detection of metabolic disorders, we deliberately seek and find the causes of these diseases. Through in-vivo diagnostics in fresh blood outside the body, using new measuring procedures and micromethods, we are eliminating the triggering factors or their effects before the syndrome can manifest itself and are therefore avoiding ineffective treatment of symptoms.

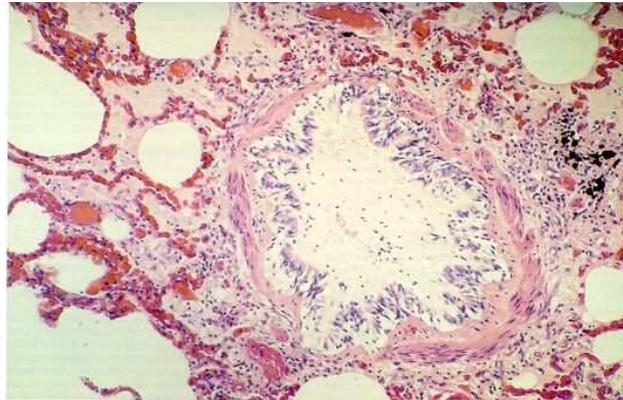
Our approach and success is the result of many years of interdisciplinary interplay between pathobiochemistry, molecular medicine, molecular biology, genetic engineering, medical engineering, biophysics, proteomics and above all of the special know how for living systems/unique skills in "in vivo" testing

on one hand, as well ecologists/toxicologists and patients/doctors on the other. Our common goal: To stop the worldwide catastrophic sickness trend for the benefit of patients = "responsibility for man".

Causes of the diseases

The causes of the diseases lie in multi-directional interaction between genetic disposition, immunological non-regulation and environmental exposure, i.e. "western lifestyle". The main factors are

a) A rapidly increasing life expectancy (demography) and thus inevitable associated decline in the allergy-rejecting, biological/immunological competence of the whole population. Increasing diseases rates in children and young persons (among other things due to psychosocial-immunological reasons).

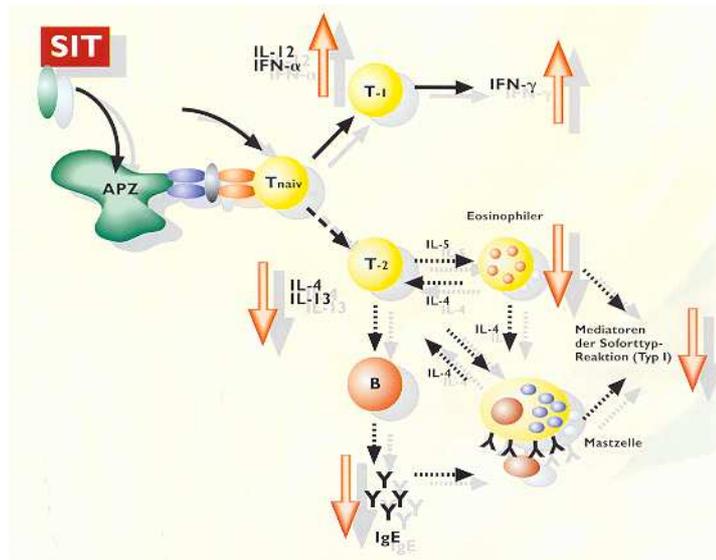


b) Increase in the allergy-triggering foreign substances in the environment - supported by increasing globalisation and with it the associated inflow/contact with foreign noxious substances, goods, food, materials, and vacations out of/with third countries.

c) These result is a diagnostic - and even more therapeutic - unsatisfactory actual situation, which will expand hugely in the future, as it is only controlled symptomatically. There is no causal therapy. The available in vitro diagnostics are primarily limited to measurement of allergen-specific IgE antibodies.

Pathogenesis/3-Stage-model

Considerable progress has been achieved in recent years in understanding the underlying non-regulations in these leading public diseases, allergy and asthma. With our "in-vitro-tests" on patients, we have been able to develop a 3 -stage model for the pathogenesis of these diseases.



Allergic reactions for the reasons already described (foreign environment, travelling, relocation, changed environment), allergens (cats, horses, pollen, food, mites).

- Specific IgE-synthesis (auto- immune reactions).

a) Triggering of unspecific IgE- synthesis by an altered biology, biological contaminations

- Antigenic and C-substance activities of related glycopeptides from fungi, parasites and vegetables, such as lipo-polysaccharides (LPS) and autogenic proteins from candida albicans or aspergillus fumigatus, toxins plus proteins (animals); inactive gIFN, cytokines (IL-4, IL-2, incl.), misdirected platelets, eosinophiles, T -cells, B-cell (effector) response .
- Carbohydrates (glucose, displacement of glutamine, inter alia), ATP (energy-metabolism) .

- Psychological stress (noradrenaline: (ATP) cAMP-prostaglandin, leucotriene, interleukine).
- b) The cause lies in the sensitisation of the human biological system by changed eco-systems, industry, road traffic as well as the western life-style: lack of exercise (sport), too much hygiene, air (urban-rural), nutrition (constituents)
- Formaldehyde, sulphite/SO₂, isocyanates, anhydrides,...
 - triethylene tetramine (paints, lacquers, textiles, insecticides,...)
 - heavy metal compounds/salts (Pb^{2+/4+}, Cd²⁺, Hg²⁺-organics) complex salts of platinum, nickel, charged (lipophilic) chemicals (detergents, soaps, care products,...)
 - finely spread heavy metals (Pt, Pd, Rd, car-catalytic converters)
 - respirable particulate matter (PM10) of diesel-powered cars (dust)
 - cigarette smoke (nicotine, Cd²⁺,...)
 - CO, CO₂, NO, NO₂, O₃, N₃⁻ (NO₂ + O₂ + light, temp. → NO + O₃; CO₂ + O₂ → CO + O₃)
 - ... pharmaceuticals (inter alia aspirin, penicillin), also without IgE-formation (anaphylaxis)
 - ... natural substances: biogenic amines, pheromones, animal hairs, feathers, and excrement (mites).

The combination of sensitisation (1st stage), triggering and allergic reaction leads to a physical stress situation which the body is no longer able to cope with and consequently the manifestation of the disease syndrome neuro-dermatitis, asthma inflammatory reactions, ... thromboses, arteriosclerosis, diabetes, neuro-degenerative diseases, leukaemia.

Self-repair/regenerative medicine

A healthy lifestyle (exercise - sport, normal hygiene, good food, fresh air, positive thinking) can partly counteract sensitisation by mobilising the body's self-repair mechanisms (strengthening the immune system, inter alia). Knowledge of the logistics in the



pathogenesis of these public diseases traced (mainly) using our "in-vivo test" and our new micro-methods, leads to the early detection and diagnostics of disease symptoms, which are remains undetected by conventional diagnosis and to the intervention and planning of preventive measures for the benefit of the patient and of our health system. The living "organ" blood is the main point of attack for our biotechnological, medical and genetic engineering methods. The chromosomes and genome play a not insignificant role, inter alia für the regenerative restoration of the general "healthy" condition of our patients = regenerative medicine

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