Personalized vaccination strategies: 360-degree approaches

Only by taking personalized immune profiles seriously can we make vaccinations truly safe and effective. **Molecular mimicry** and **complexity of the individual immune**

Vitamin D & Nrf2
A crucial connection

Affected genetics (relevant mutations)

- GSTM1 + GSTT1 Deletion
- GSTP1 Val 105
- EPHX1 (Exon 3)
- P-Glykoprotein / GSH
- CYP2C19
(Caution: severely reduced)
- CYP2D6
(Caution: severely reduced)
- CYP3A4 / CYP3A5*3
(Caution: greatly increased)
- SOD2 + PON1
- CYP1A2*F / 1A1
- NAT2 (Caution: very severely reduced!)
- PAI1
- VKORC1 + COMT
- SULT1A1
- MTHFR
- SLC-Transporter + MATE
- ABCB1 (MDR1 – 3) + ABCC + ABCG Transporter
- Histidin / Albumin / Aniline / o/m-Toluidine / Pyrazole
- AHR / ARNT
- TMPRSS6
- HFE / HTR2A / ADORA2A
- SIRT, NRF2, WNT, COX, FOX, mTORC1 **+ EBV**
- UGT1A1-1A2 / UGT2B15
(Caution: reduced)
- IL6, IL10 + TNF
- Aromatic ring + imidazole ring (N5/N7)
- ATP
- COL1A + MMPs
- U2AF35 + Bet v1

Development of PROVEN allergies:

TBHQ, BHA, BHT, gallates, sorbic/citric acid and PEG, benzoic acid/salts, glutamates propyl gallate (not inactive!)

Existing reactive viruses
EBV + HHV6!!! In cases of latent EBV or HHV6, trigger a **reactivated infection** that could intensify the vaccine reaction.

Previously severe reactions to vaccines:
development of multiple suspected diagnoses such as
- multiple sclerosis
- rheumatoid arthritis,
- fibromyalgia,
- mastocytosis / mast cell activation syndrome
- Fabry disease
- Systemic lupus

Conclusion: there are incredible healthcare costs (genetic testing, MRI, X-rays, hospital stays, visits to specialists, etc.).

Folate & Nrf2
Influence on methylation and immune response
Low folate levels can inhibit the activation of Nrf2. ⚠ **Lead to an excessive inflammatory response after vaccinations** (e.g., through IL-6 dominance). ⚠ Reduce the body's ability to detoxify adjuvants and vaccine components.

POPs & vaccine compatibility: POPs could influence the **metabolism of vaccine components** via cytochrome P450 enzymes, which could lead to unexpected side effects. Persistent organic pollutants (POPs), DDT, DDE, β-BHC, oxychlordane, α-chlordane, mirex, PCBs, paraquat / dieldrin, glyphosate / s-metolachlor / pendimethalin / folpet

Metals: arsenic, cadmium, nickel, chromium, lead and methylmercury. **There is evidence that MNPs may influence antibody formation after vaccination, particularly through their interactions with immune cells. Micro- and nanoplastics (MNP) Altered MICROBIOME**

Road dust, pollen, diesel soot, exhaust fumes, smoke, wear particles from tires, brakes, clutches, Airborne pollutants: fine dust (PM2.5), benzene, soot, benzidine, 1,3-butadiene

Personalized vaccination strategies
Our immune system is not a static model

Only by taking personalized immune profiles seriously can we make vaccinations truly safe and effective.

The microbiome as a natural immunomodulator: Studies show that the composition of the gut microbiome can influence antibody formation after vaccinations. Dysbiosis, Helicobacter P., E. Coli, Faecalibac. prausnitzii, Microbiome & vaccine booster effects, Age, environmental factors, Zonulin, Secretor status + AHB antigen (FUT2)

Unnoticed risk factors that already existed during the administration of the vaccine

- Pre-existing viral infection (IgM EBV/HHV6 positive for at least 25 years!) Already elevated thymidine kinase levels (= EBV!)
- Already elevated total IgM
- Low albumin / BSG (blood sedimentation rate elevated)
- Elevated IL 6 / IL 10 / TNF-α / CRP
- TH1/TH2 imbalance
- MBL defect / Lectin pathway immeasurably low
- Gut microbiome/leaky gut (Tight Junctions) and, in some cases, active Helicobacter pylori
- Very low vitamin D/folate levels
- In some cases, already elevated antiphospholipid AK
- Significantly prolonged PFA 100 + PAI1 4G/4G homo (associated with significantly increased PAI1 expression) + leptin system + protein Z deficiency
- CFS + MCS
- Raynaud's syndrome
- orthostatic hypotension
- ATP / DHEA level / TRAP / S1P
- cardiac arrhythmia
- allergic bronchial asthma
- Relevant genetic polymorphisms / non-functional enzymes Phase 1, 2 and 3, transporter issues (ABC / MDR1, SLC, P-gp …)
- Pollen exposure & vaccine reactions (immune system overreaction), Histamine release & mast cell activation, Cross-reactions with vaccine components Polysorbate 80, aluminum, PEG?)

DNA methylation, histone modifications and the expression of microRNA triggered by environmental factors

AMINO ACIDS! DJUVANTS!
THIOMERAL, Medium 199, FORMALDEHYDE, PHENOXYETHANOL

Reactions and DDIs to Aromatic amines / Nitro compounds (Aniline, o-toluidine, 4-chloroaniline) - pyrazole ring, acrylonitrile

Previously experienced severe DDIs (emergency physician / emergency medical services / intensive care unit): Lidocaine, procaine, novaminsulfon, atropine, heparin, tranexamic acid, PPIs, Fexofenadin, Morphin, Sulfasalazin, Paracetamol, Erythromycin, Cortisol, Ketoconazole, Adenosine, Omeprazole, Bupivacin, Zostex, NSAID/FANS, ASS, Dexamethasone, Latex, Benzodiazepine, nitrous oxide

Conclusion: Just one of many examples - systemic local anesthetic intoxication – emergency medical services or on longer sick leave

phenol + formaldehyde gases diethylstilbestrol, bisphenol A, dioxin trichloroethylene, dichloroacetic acid, TCA sulfur dioxide, toluenesulfonamide-formaldehyde resins p-tert-butylphenol-formaldehyde, parabens, paraben mix, chlorinated agents, wool wax, alcohols hydrogen fluoride, nitro esters, Toluol

Elevated inflammatory markers: PM2.5 can increase the production of cytokines such as IL-6 + TNF-α, which can lead to an excessive or insufficient vaccine response.

Medication & DDI (drug-drug interactions)
Pharmacodynamic interactions, Pharmacokinetic interactions (P450 enzymes, transport proteins (P-Gp, OATs, MRPs) or immunomodulation)

Immunological interactions (Systemic reactions to lidocaine, bupivacaine, procaine or mepivacaine may interact with vaccines. have a direct **modulating effect on the immune response**, as they **regulate inflammatory processes via sodium channels.** Expression of toll-like receptors (TLRs), Corticosteroids - reduced vaccine response

Changing disease patterns: Climate change is shifting the geographical distribution of infectious diseases, requiring new vaccination strategies. Interaction of airborne allergens, such as pollen, with the innate immune system of the respiratory tract and on the T-cell response, which is mediated by dendritic cells