

ALLERGY, NOTEWORTHY

BULLET POINTS FOR FUTURE ALLERGY RESEARCH

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Maybe this is a difficult task – defining an agenda for future research. Here are some thoughts as we don't know the reasons for the allergy epidemic even after 100 years of research. And we don't have any cure yet, there is some relief of symptoms and there are some limited curative efforts but we don't have any real understanding of what is going on. The following research areas may therefore be identified in NON-therapeutic research:

- Allergologists have only limited knowledge of immunology and most immunologists have no interest in allergy.
- Animal models and in vitro studies have nearly zero value for human allergy (different MHC, different IgE receptor, different co-conditions).
- Pollen and air pollution effects are nice to know but not necessary to understand the initiation of allergy.
- The hygiene hypothesis has severe shortcomings while iatrogenic causes (antibiotics, vitamin D, paracetamol) get an increasing attention.
- We need RCTs, no lengthy reviews and editorials.
- Wrong time-points have been examined in recent epidemiological studies as allergy develops in utero or the first few months. Late onset allergy (>60 y) has also never been examined systematically. We need new pregnancy and geriatric cohorts.
- Epidemiology selected wrong study locations. IgE and allergy needs to be examined in Africa on the background of helminth biology.
- Genetics did not deliver as GWAS chips included only frequent variants and tested mainly European populations. We need full genome sequencing and/or rare variant GWAS including strong bioinformatics support.
- More tools need to be tested: whole genome methylation screening, RNA sequencing of single cell transcripts, RNA gut and skin bacterial profiling are under-used methods so far.

I believe that many of these issues can be solved if allergy research can be restructured from an institutional (epidemiology, human genetics, immunology, dermatology...) approach to a task/working group related approach.

It is not important to fund a herd of horses but to identify the winning horse.

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