How we can make vaccines more effective in newborns

The immune system is known for its ability to remember its response to pathogens, leading to more efficient clearance of the same pathogen upon reinfection. This immunological memory forms the basis of one of the most important medical achievements: infection prevention through vaccination.

Any memory response to a pathogen, vaccine, or tumor starts with naive T cells.

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For a long time, research on naive T cells has focused purely on their numerical presence. It is now becoming clear that not only the number of naive T cells, but also the composition of the naive T-cell spectrum, can change with age and in different diseases.

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Although the success of vaccination is beyond dispute, important challenges remain. One of these challenges is the successful vaccination of newborns and elderly individuals, who are most vulnerable to infections, but paradoxically respond least efficiently to vaccination.

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The newborn immune system is skewed toward naivety, and it has long been assumed that naive T cells are incapable of any kind of protective immune response. This view has been challenged, however, by recent findings.

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It is therefore attractive to speculate that especially early in life, when effector and memory formation is still low, naive T cells are part of the rapid protective response against pathogens. This may also provide opportunities for targeted immunization strategies in neonates, such as the use of adjuvants that specifically stimulate the young naive T cells.

Read full, original post: Opinion: We Have Been Naive About Naive T Cells