

Study finds why some don't respond to rubella vaccine

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Using advanced genetic sequencing technology and analysis, Mayo Clinic vaccine researchers have identified 27 genes that respond in very different ways to the standard rubella vaccine, making the vaccine less effective for a portion of the population. The findings appear today in the online journal *PLOS ONE*.

"This study highlighted the genes potentially responsible for poor response to the rubella vaccine," says Mayo Clinic vaccinologist Gregory Poland, M.D. "We found differences in genes responsible for antigen interactions, inflammation and differences in the gene pathways involved between low and high vaccine responders. It's another instance of using individualized medicine approaches to find potential solutions for patients not benefiting from standard treatments."

Researchers in the Mayo Clinic [Vaccine Research Group](#) began with a random sample of 738 healthy children and young adults who had had two doses of the MMR (measles, mumps, and rubella) vaccine and then selected 25 individuals who represented either high or low responders. Samples from those participants were subject to sequencing of [messenger RNA](#), resulting in transcriptional data that was analyzed for differences in gene expression.

This was the first Next Generation (high-speed, high-throughput) [gene expression profiling](#) and analysis conducted after rubella vaccination that provided quantitative data. Researchers say the findings will help in efforts to better understand reactions to the existing rubella vaccine and be very useful in developing alternative vaccines so individuals in the low-response group can be adequately protected.

Provided by Mayo Clinic

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