

# Vaccines and vaccinations

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### ABSTRACT

**Summary:** Science and knowledge have been a great catalyst for the progression of human health and wellbeing. In the past one and half centuries, average human life expectancy has doubled from 40 years to over 80 years. I believe, we were getting a tad bit complacent that health care is on the home run addressing all challenges with technical breakthroughs contributing to the extended quality of life besides the extended life expectancy (invincible?!). Well, a tiny virus, 1/1000th the size of a human hair reminded us of the fragility of life, and we are not sure when (or if) we will get off its grip. Having been given a reality check, it is time to take a pause and look back at the milestones that have contributed to the sustenance of life on this illustrious planet, earth. Vaccines, a serendipitous contribution to life has been the corner stone for the sustenance of life expectancy besides the quality of life and truly relevant to this date. The science of 'vaccinology' has come a long way, from a crude bacterial preparation to the exploitation of a fragment of RNA to protect life from exogenous and endogenous health threats. The knowledge explosion in biological and mathematical sciences culminated in the development of novel adjuvants, formulations and vaccine delivery strategies that are poised to take vaccines to another dimension in terms of human and animal health. Life is a continuous race for both the host and pathogen. As the pathogen evolves to evade the host strategies, the host conceives novel alternates to overcome the obstacles and in turn the pathogen...the race continues!!