PARAINFLUENZA VACCINE STATUS

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CURRENT VACCINES IN DEVELOPMENT

- As of December 2017, there were 4 HPIV vaccine candidates in clinical trials.
  - rHPIV3cp45, a live attenuated intranasal vaccine developed by NIAID, has completed a phase 1 trial. The target for this vaccine is children 6-36 months old.\(^1\)
  - rB/HPIV3, a live attenuated chimeric bovine/human vaccine developed by NIAID, has completed a phase 1 trial. The targets for this vaccine are adults over 18 years of age and children 6-59 months old.\(^1\)
  - MEDI-534, a live attenuated intranasal RSV + HPIV3 vaccine developed by MedImmune LLC has completed a phase 1 and a phase 1/2a trial. The targets for this vaccine are children aged 2 months to 9 years.\(^1\)
  - HMPV/PIV3 mRNA Vaccine (mRNA-1653), developed by Moderna, started phase 1 clinical trials in December 2014. The target for this vaccine is children.\(^2\)

CHALLENGES

- A multivalent HPIV vaccine is needed to provide adequate protection from the various HPIV serotypes.\(^3\)
- Research into potential subunit vaccine options have been severely limited since the 1960s due to the “disastrous results of the formalin-inactivated RSV vaccine trials,” which showed enhanced viral activity after natural infection.\(^2\)
  - The most recent subunit vaccine study showed induction of protective immunity in hamsters.\(^4\)

PREVIOUS CLINICAL TRIALS

Anderson et al provide a valuable summary of previous trials. In short, they describe that very few PIV3 live attenuated vaccines have entered phase 1 clinical trials. No adverse events have been documented. One vaccine candidate showed promising seroresponses in infants ages 6-12 months.\(^1\)
REFERENCES


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