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Prophylactic vaccines: RSV vaccine (mRNA-1172 & mRNA-1777) and H7N9 (mRNA-1851)

Last program update: May 7, 2020

Modality	ID #	Program	Preclinical development	Phase 1	Phase 2	Phase 3 and commercial	Moderna rights
Prophylactic vaccines	mRNA-1647	Cytomegalovirus (CMV) vaccine					Worldwide
	mRNA-1893	Zika vaccine					Worldwide *BARDA funded*
	mRNA-1172/ Merck V172	Respiratory syncytial virus (RSV) vaccine					Merck to pay milestones and royalties
	mRNA-1177	Respiratory syncytial virus (RSV) vaccine					
	mRNA-1653	hMPV/PIV3 vaccine		Phase 1 (healthy volunteers)	Phase 1b (Age de-escalation) Seropositives		Worldwide
	mRNA-1345	Pediatric respiratory syncytial virus (RSV) vaccine *Future respiratory combo*					Worldwide
	mRNA-1189	Epstein-Barr virus (EBV) vaccine					Worldwide
	mRNA-1851	Influenza H7N9 vaccine					Worldwide *Advancing subject to funding*
	mRNA-1273	Novel coronavirus (SARS-CoV-2) vaccine					Worldwide *BARDA funded*

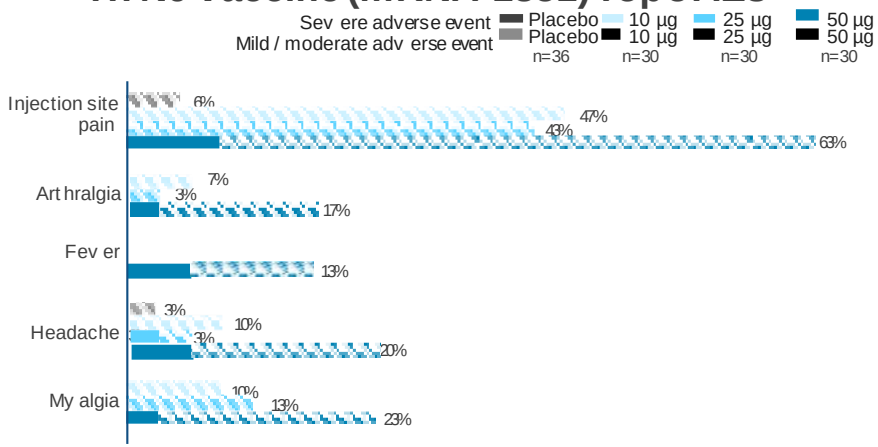
Clinical safety data from RSV vaccine (mRNA-1777) and H7N9 vaccine (mRNA-1851) Phase 1 trials

RSV vaccine (mRNA-1777) safety summary

MERCK

- *Interim safety data as of September 2018:*
  - *mRNA-1777 was well-tolerated at first three dose levels in younger and older adults*
  - *The highest dose arm (dose four) in the older adult cohort was not as well tolerated but did not result in significant safety concerns*
  - *No treatment-related SAEs or TEAEs*
- *mRNA-1777 will not move into a planned Phase 2a study at this time*

H7N9 vaccine (mRNA-1851) Top 5 AEs[1]



Both vaccines in have generated safety data to permit dose escalation

[1] Adverse events shown after Dose 2, top 5 selected based on cumulative severe adverse event prevalence acrosscohorts, then by cumulative overall adverse event prevalence acrosscohorts

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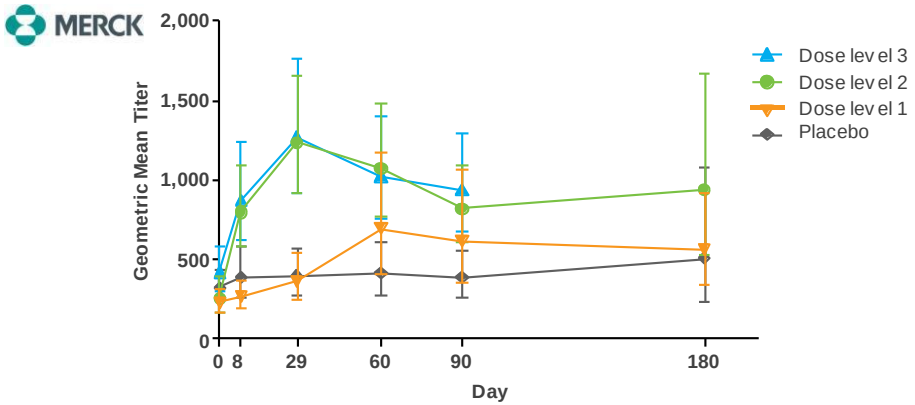
Clinical safety data from RSV vaccine (mRNA-1777) and H7N9 vaccine (mRNA-1851) Phase 1 trials

RSV vaccine (mRNA-1777) immunogenicity

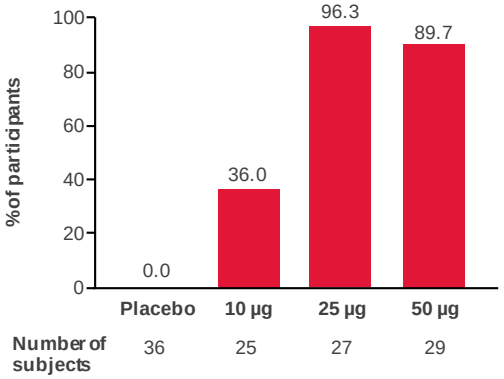
Neutralizing antibody titers in healthy older subjects [Ages ≥ 60 and ≤ 79 years] in RSV vaccine (mRNA-1777) Phase 1 clinical trial per-protocol set[1]



[1]Interim data

H7N9 vaccine (mRNA-1851) immunogenicity

Percent of subjects with HAI ≥ 1:40 with H7N9 vaccine (mRNA-1851) in Phase 1 clinical trial at day 43



2 positive readouts to date – immunogenicity & dose responses observed

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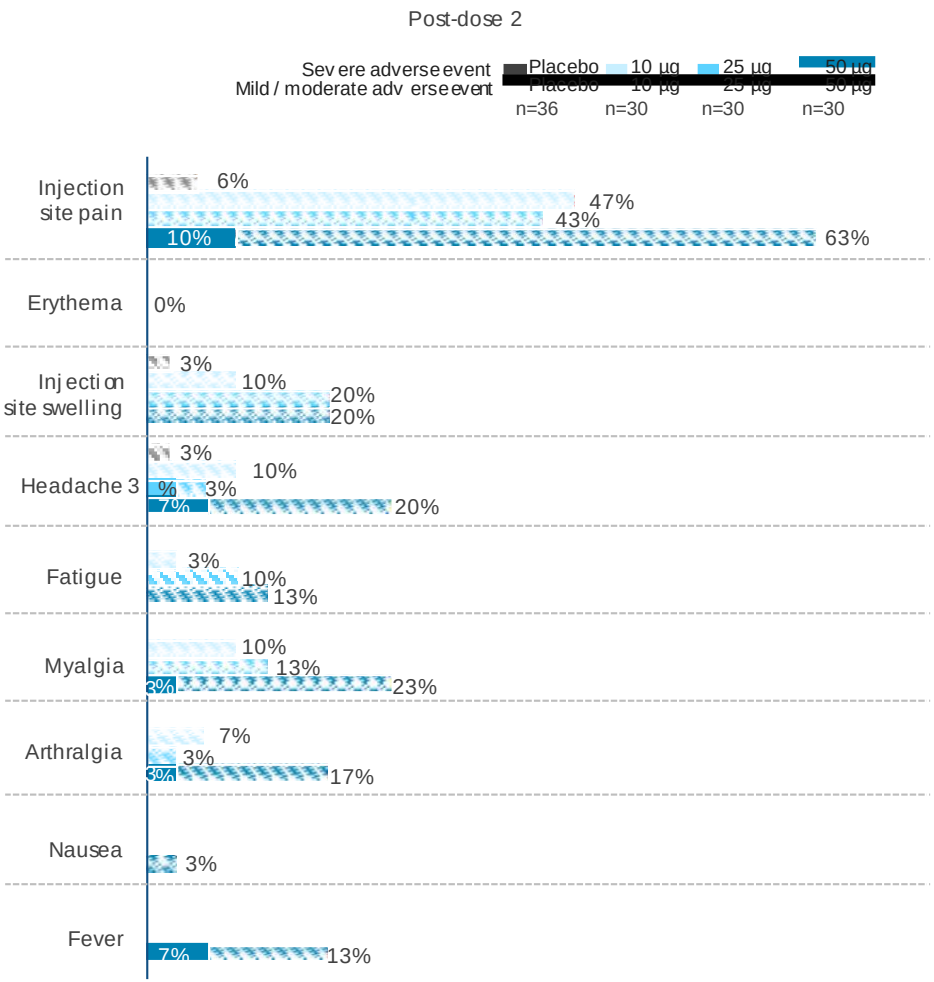
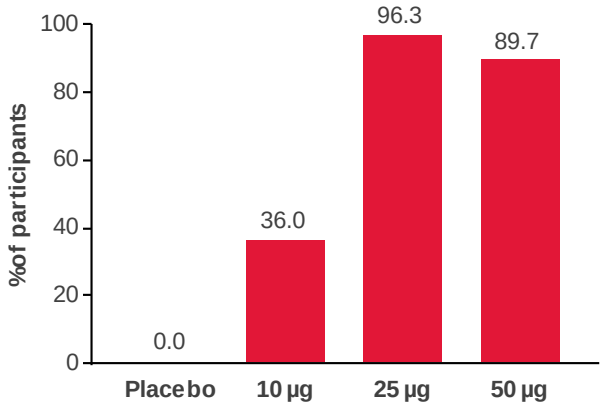
H7N9 vaccine (mRNA-1851) – Phase 1 data

H7N9 vaccine (mRNA-1851) safety data



H7N9 vaccine (mRNA-1851) immunogenicity

Percent of subjects with HAI ≥ 1:40 with H7N9 vaccine (mRNA-1851) in Phase 1 clinical trial at day 43



Number of subjects	36	25	27	29

H7N9 vaccine clinical comparators

All 2 doses, 3-4 weeks apart	Subunit Flu No adjuvant 45µg, (N=95)	Subunit Flu AS03 adjuvant 15 µg, (N=96)	Subunit Flu MF59 adjuvant 15 µg, (N=94)	mRNA-1851, No adjuvant, 25µg, (N=27)
HAI antibody, % ≥ 40	9%	84%	57%	96.3%
HAI antibody, GMTs	7.6	103.4	29.0	103.4
MN, % ≥ 20	19%	92%	74%	100%
MN, GMTs	15.7	118.6	52.2	89.8

MN: microneutralization; GMT: geometric mean titer

Note: Cross-trial comparison inherently difficult due to differences in assays, study design, etc., the reported data shown above should not be used to draw definitive conclusions
Source: Lisa Jackson et al. JAMA. 2015;314(3):237-246. doi:10.1001/jama.2015.7916

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