

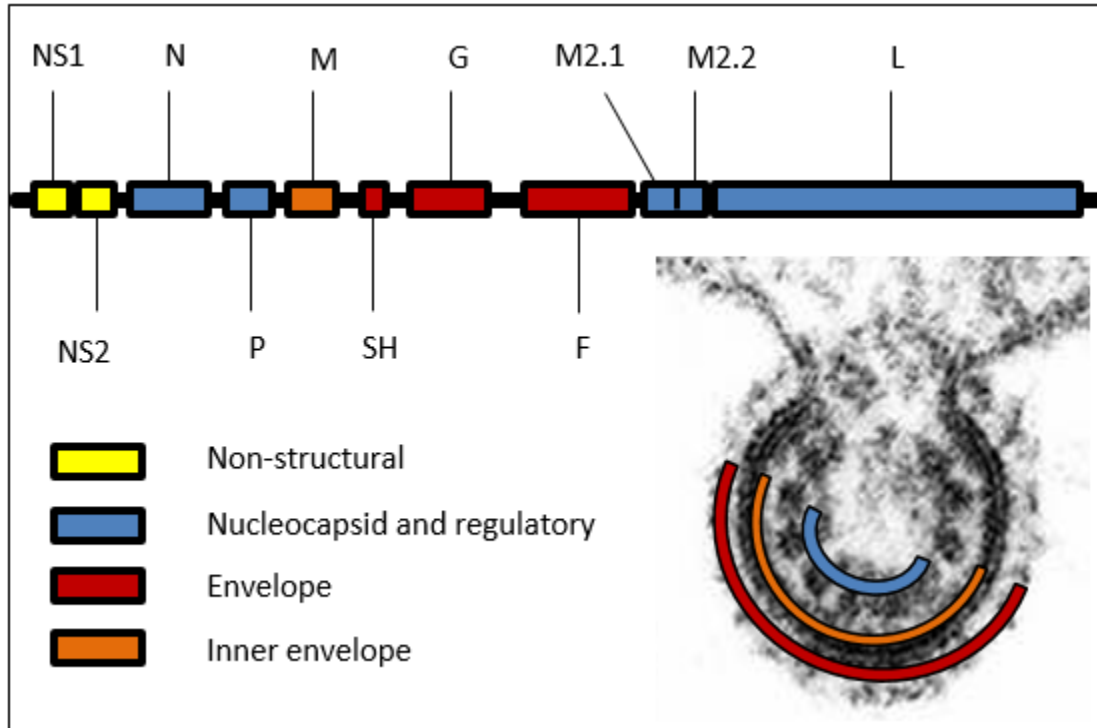


RSV virion and vaccine products

Natalie Thornburg

June 23, 2022

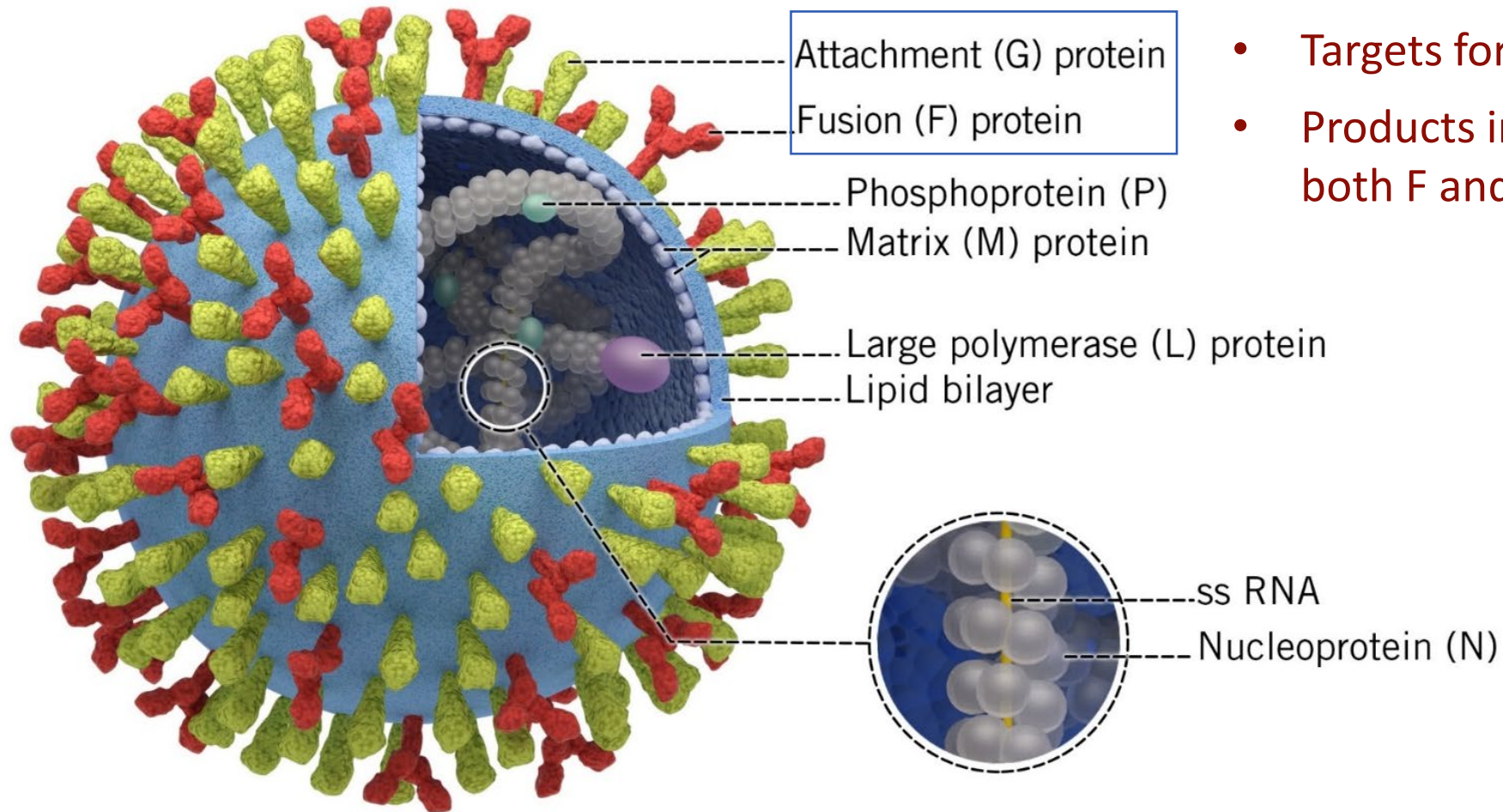
RSV genome



[Respiratory Syncytial Virus \(RSV\) | British Society for Immunology](#)

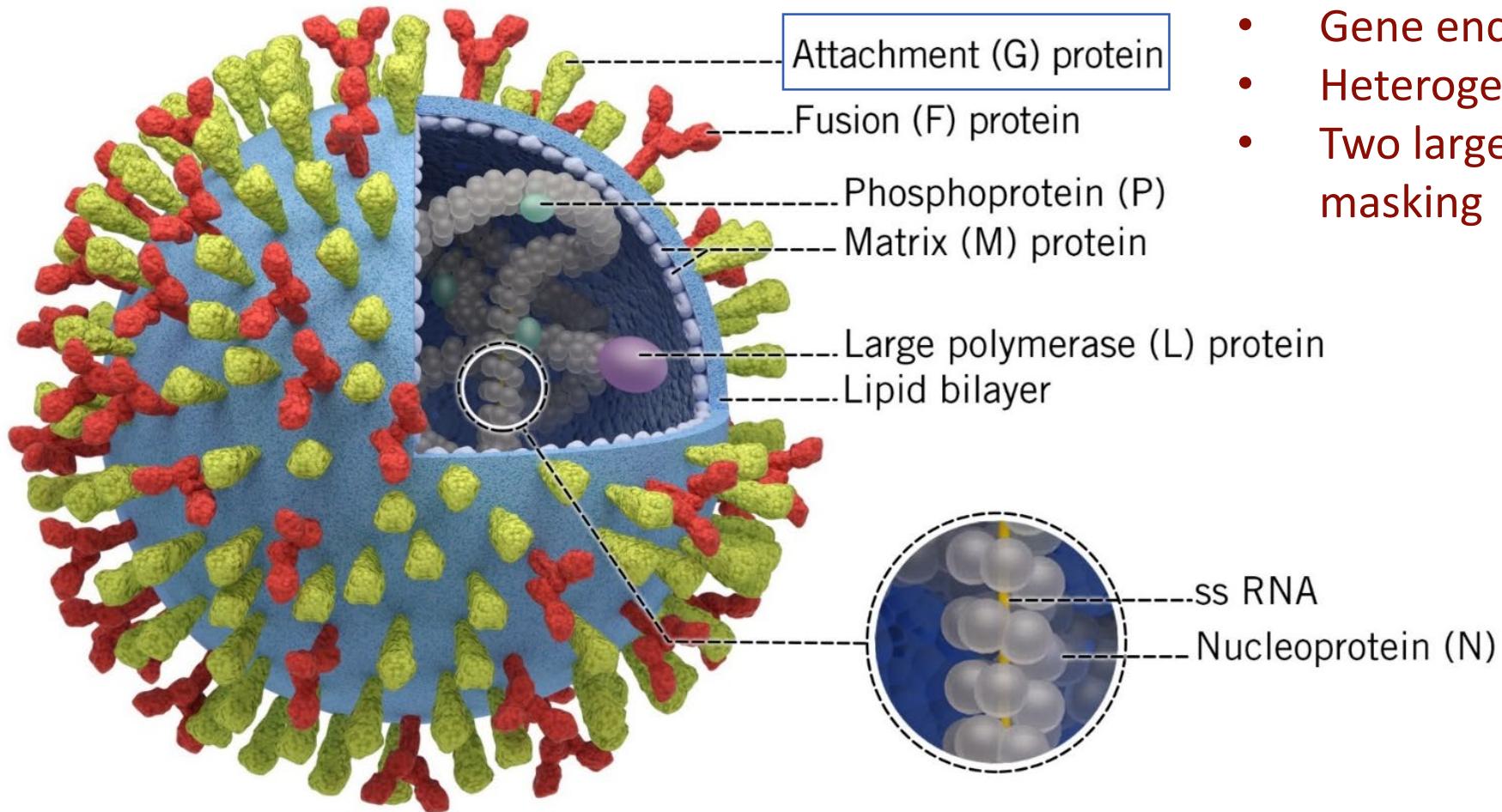
- Filamentous *Orthopneumovirus*
- 15.2 kbp genome
- Single stranded negative sense
- 11 viral proteins
- Divided into two subgroups / serotypes A and B
- RSV A and B co-circulate

RSV – virion structure



- Targets for neutralizing antibodies
- Products in target F alone or have both F and G

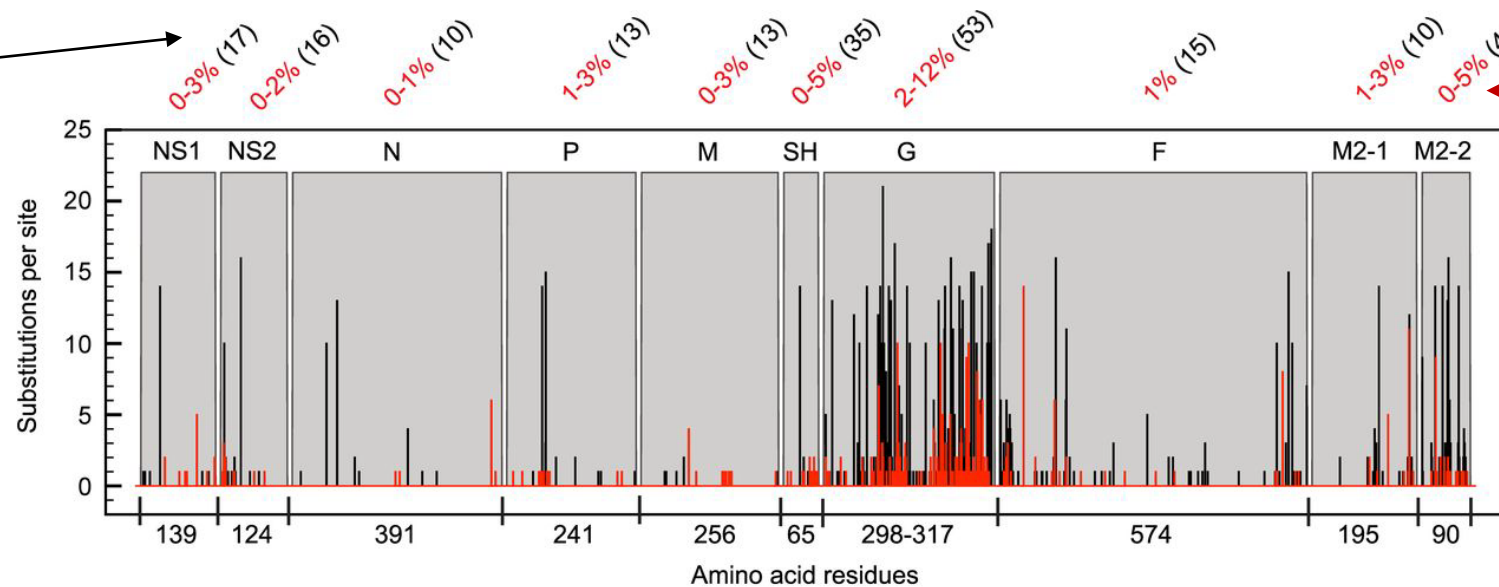
RSV Glycoprotein (G)



- Gene encoding G defines RSV A/B
- Heterogeneous sequence
- Two large mucin – like domains – antigen masking

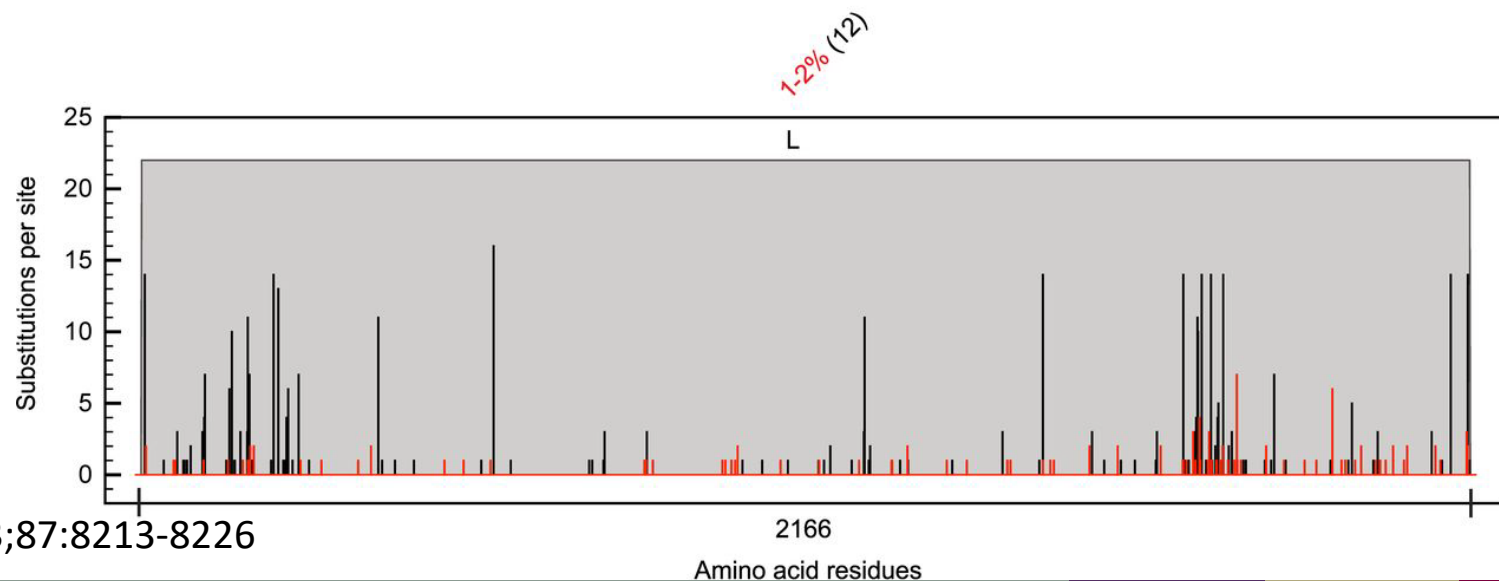
RSV G gene is the most variable in the genome, F is more conserved

(Percent sequence variability between A and B)

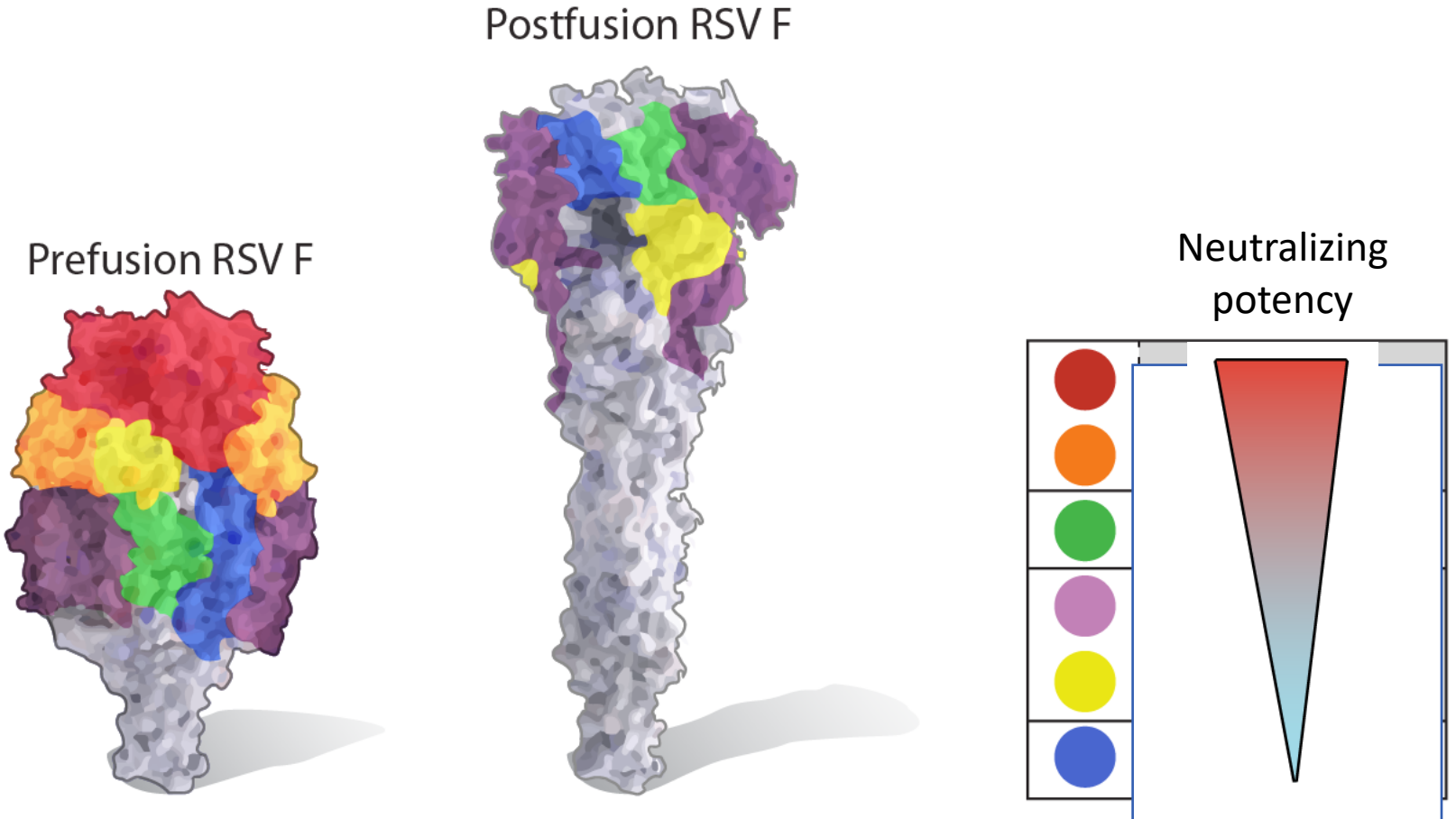


(Percent variability within each B protein)

RSV A
RSV B



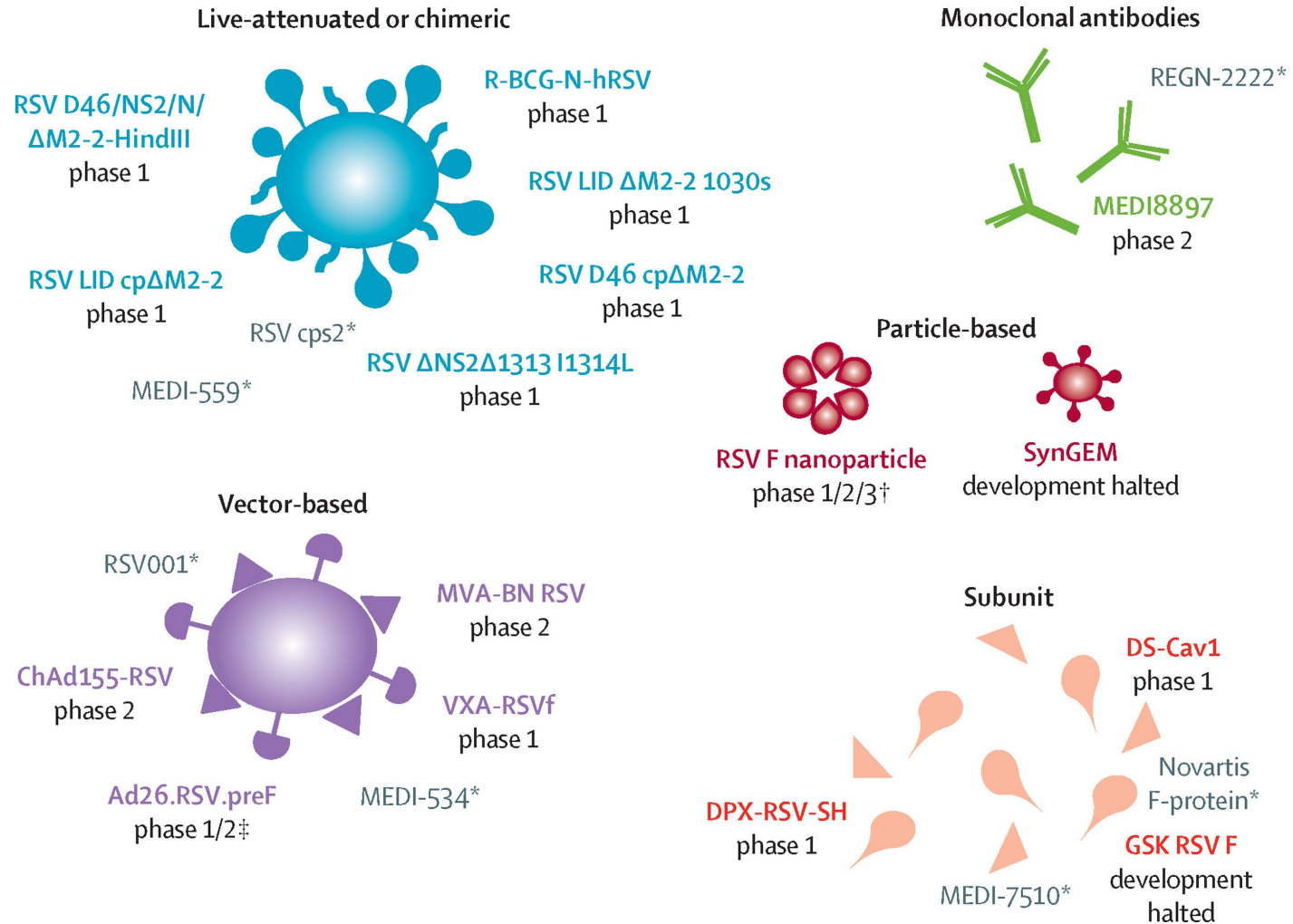
The fusion (F) protein exists in two or more structural forms, which bind different antibodies



SITE Ø SITE I SITE II SITE III SITE IV SITE V

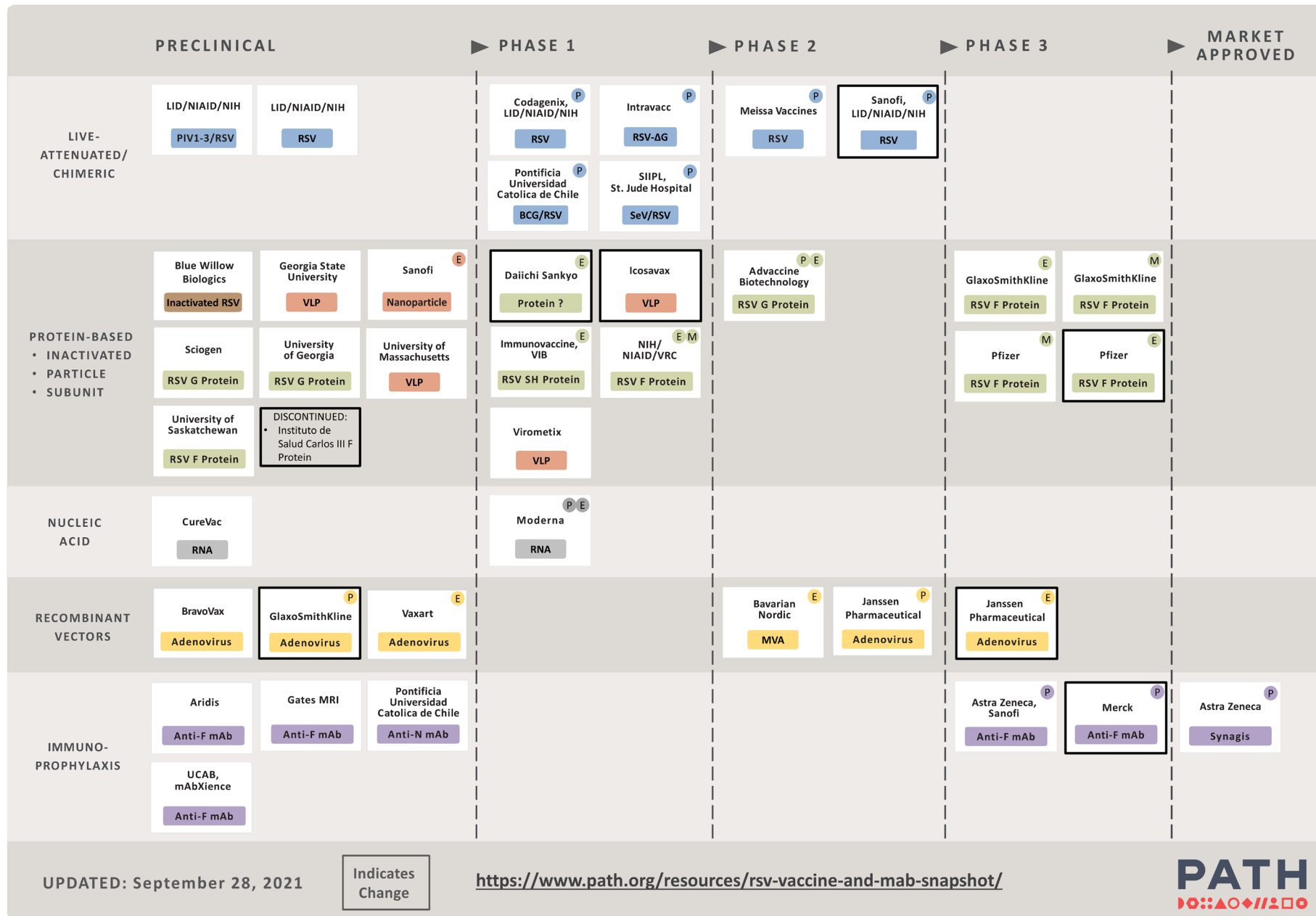
Graham B. Current Opinion in Virology. 23: 107-112. 2017.

There are 5 types of RSV-preventatives in clinical trials



RSV Vaccine and mAb Snapshot

TARGET INDICATION: P = PEDIATRIC M = MATERNAL E = ELDERLY

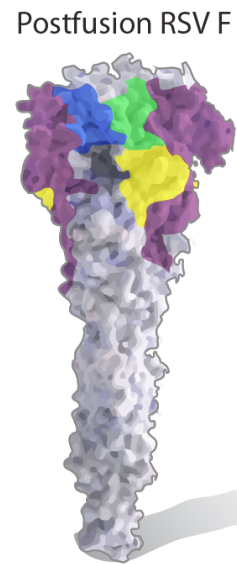
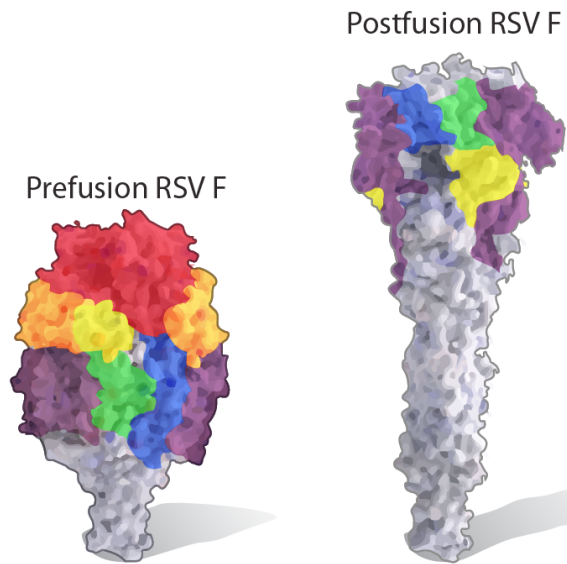


UPDATED: September 28, 2021

Indicates Change

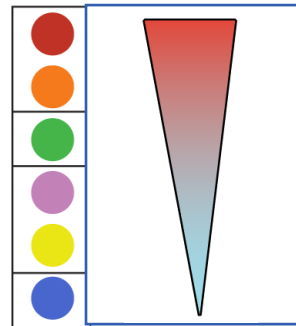
<https://www.path.org/resources/rsv-vaccine-and-mab-snapshot/>

The fusion (F) protein exists in two or more structural forms, which bind different antibodies



Neutralizing
potency

Location



Palivizumab – site II

Nirsevimab – site 0

Regeneron Suptavumab - site
IV

SITE 0

SITE I

SITE II

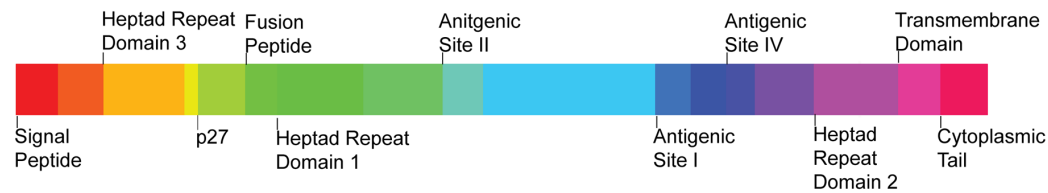
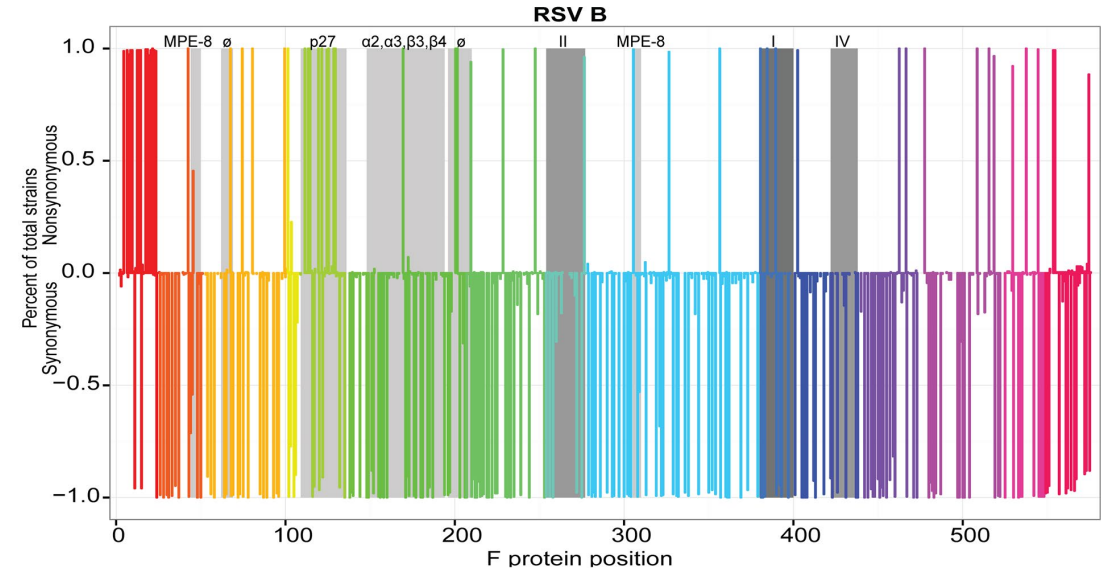
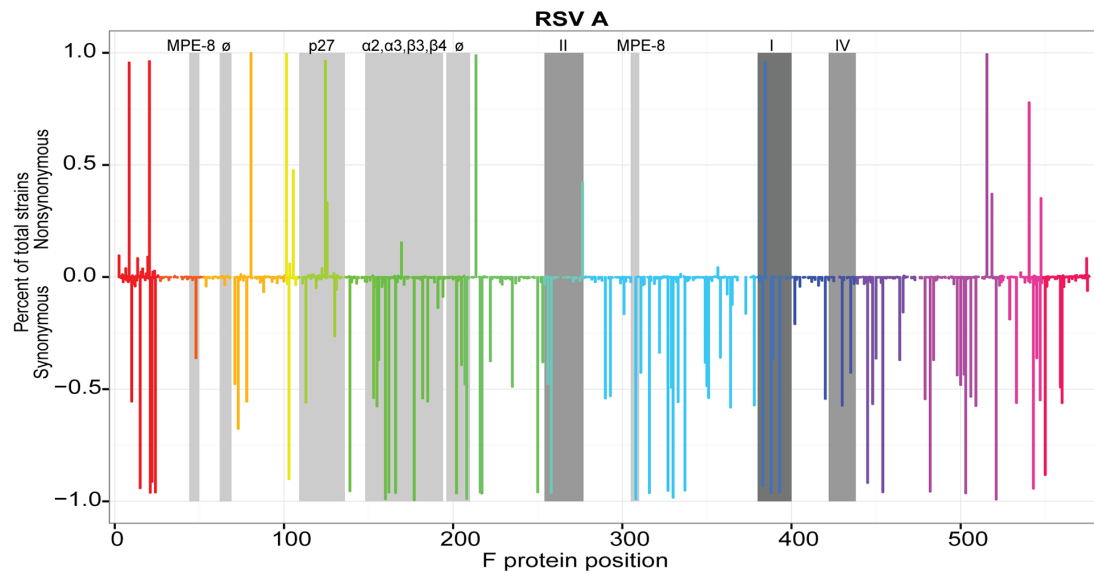
SITE III

SITE IV

SITE V

Current Opinion in Virology

Genomic variability in antigenic regions of F



Antigenic Sites Legend:

Pre-fusion only Both pre- and post-fusion Post-fusion only

Thank you

For more information, contact CDC
1-800-CDC-INFO (232-4636)
TTY: 1-888-232-6348 www.cdc.gov

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