

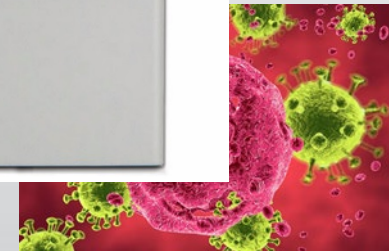
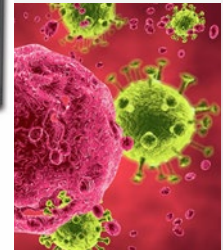
# Comparing COVID-19 Vaccines from **Pfizer-BioNTech** and **Moderna-NIH**

AWST Promatix 1000 Bio-Processor

AWDT ACE/VET Axcel Blood Chem. Analyzer



Tanya De Boer  
Director of Marketing

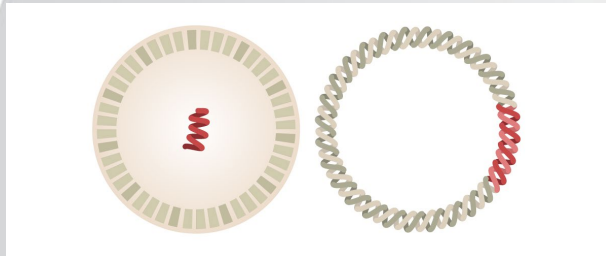


# Comparing COVID-19 Vaccines from **Pfizer-BioNTech** and **Moderna-NIH**



Phong Tran

Principal Investigator/Director of BioPharma BD



## PFE/MRNA Overview

**Pfizer: mRNA-LNP S, 30ug/0.3ml @ day 0, 21**

\_Phase 3 trial completed in 43k @ 16-65+y/o  
VE @ 95% Placebo 162 (9 severe), Vx: 8 (1 severe)

→ FDA EUA Issued 12/11/20

**Moderna: mRNA-LNP S, 100ug/0.5ml @ day 0, 28**

\_Phase 3 trial completed in 30k @ 18-65+y/o  
VE @ 94.1% Placebo 185 (30 severe) vs. Vx 11 (0 severe)

→ FDA EUA Issued 12/18/20

# PFE/MRNA Formulation

## Active

- Synthetic nucleoside-modified messenger RNA (mRNA) encoding the viral Spike glycoprotein (S) of SARS-CoV-2 - frozen suspension (-80°C to -60°C) / (-20°C to -15°C)
- Concentration: 10ug/0.1ml reconstituted / 20ug/0.1ml
- Dosage/Injection Volume: 30ug/0.3ml / 100ug/0.5ml

## LNP (Lipid Nano-Particles for in-vivo delivery)

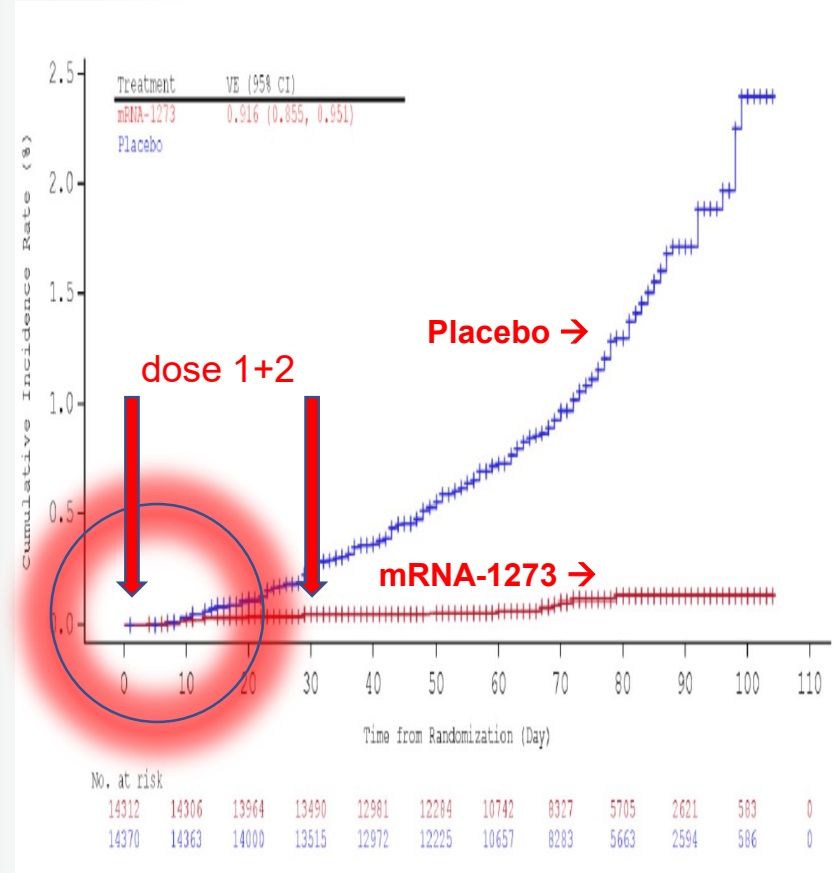
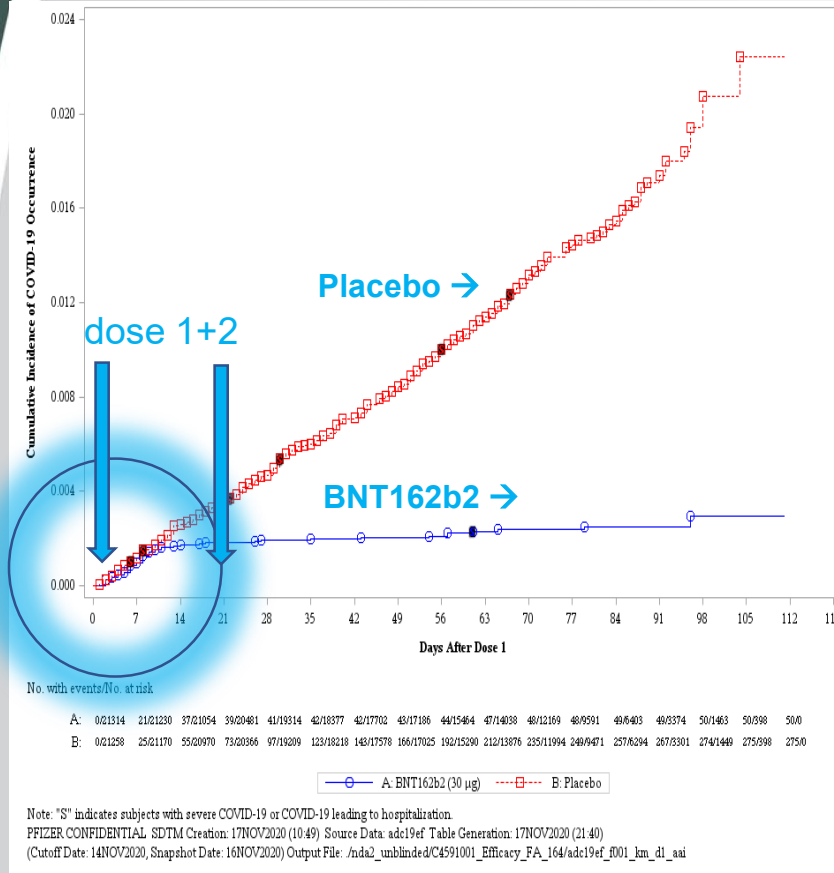
- Ionizable lipid: ALC-3015 / SM-102
- Cholesterol, DSPC, PEG2000
- DSPC-PEG phospholipids-polymer conjugate

## Salts (buffered pH)

- PBS + NaCl (diluent) / TRIS HCl + NaOAc

## Sucrose (cryoprotectant)

# PFE/MRNA Vx. Eff. (VE)



**VE similar in all age groups: PFE@95%, MRNA@94.1%**

**→ VE@90% after dose1 to 7 days after dose2**

**→ VE@92% 14 days after dose1**

## Common Adverse Events (AE), mostly mild-moderate, > grade3 AE post-dose 2 and > in young adults

- Injection Site Pain (84 / 92%), Duration (1-2 / 2-3 days)
- Fatigue (63 / 69%)
- Headache (55 / 63%)
- Muscle Pain (38 / 60%)
- Chills (32 / 43%)
- Joint Pain (24 / 45%)
- Fever (14 / 18%)

## Uncommon AE

- Lymphadenopathy (#cases): vaccine (64 / 173), placebo (6 / 95)
- Bell's Palsy (**rare**): vaccine (4 / 3), placebo (0 / 1)
- Anaphylactoid (**rare**) acute severe IgA/IgE-mediated allergy reactions: (2) UK + (1) USA HC workers - post-EUA



## Efficacy

- Would either mRNA-based vaccines reduce:
  - Asymptomatic infection
  - Transmission of SARS-CoV-2
  - Long-term effects of COVID-19 disease
  - Mortality
- Single-dose vaccine effectiveness (VE%)
- Individuals with prior SARS-CoV-2 infection

## Safety

- Vaccine-enhanced disease
- Systemic/cellular clearance and innate immunity
- Subpopulations: pediatric, pregnant, immunocompromised...

## Clinically relevant differences/immunologic non-inferiority vs:

- Protein-subunit, vectored, self-amplifying RNA, inactivated vaccines...

# Q&A Session

**ALFA WASSERMANN**  
Diagnostic Technologies, LLC



Source: Getty Image