

MS1819-SD OPTION STUDY RESULTS

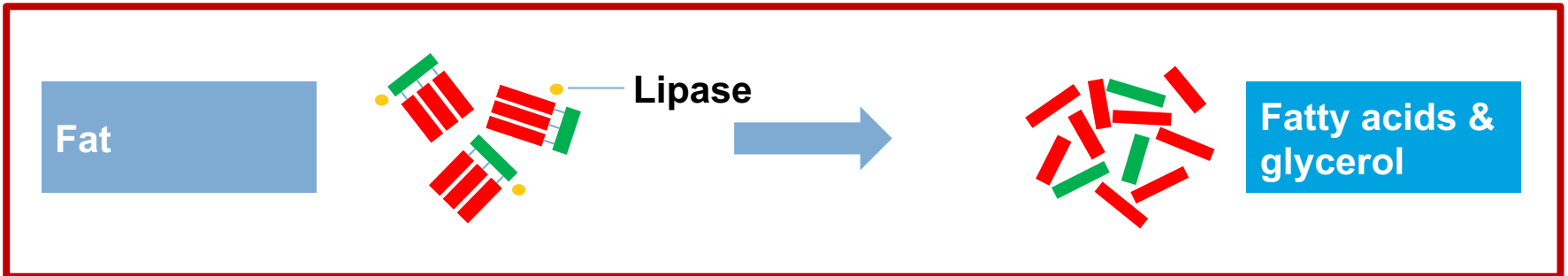
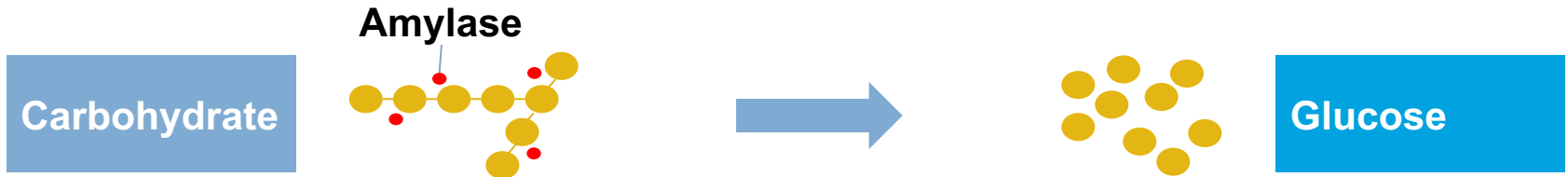
September 25, 2019

Positive OPTION Trial Data – Supports Further Development

- Safety confirmed in cystic fibrosis patients at 2.2 grams per day
- No Need for Protease – Paradigm Changing Data
- Efficacy of 2.2 gram dose in line with prior chronic pancreatitis study
- Option Data Supports Advancing MS1819
- Next Steps
 - Discuss 2b/3 Trial with FDA
 - Higher Doses and/or Enteric Coated Capsules

Food Digestion Needs Enzymes, Fat Needs a Lipase

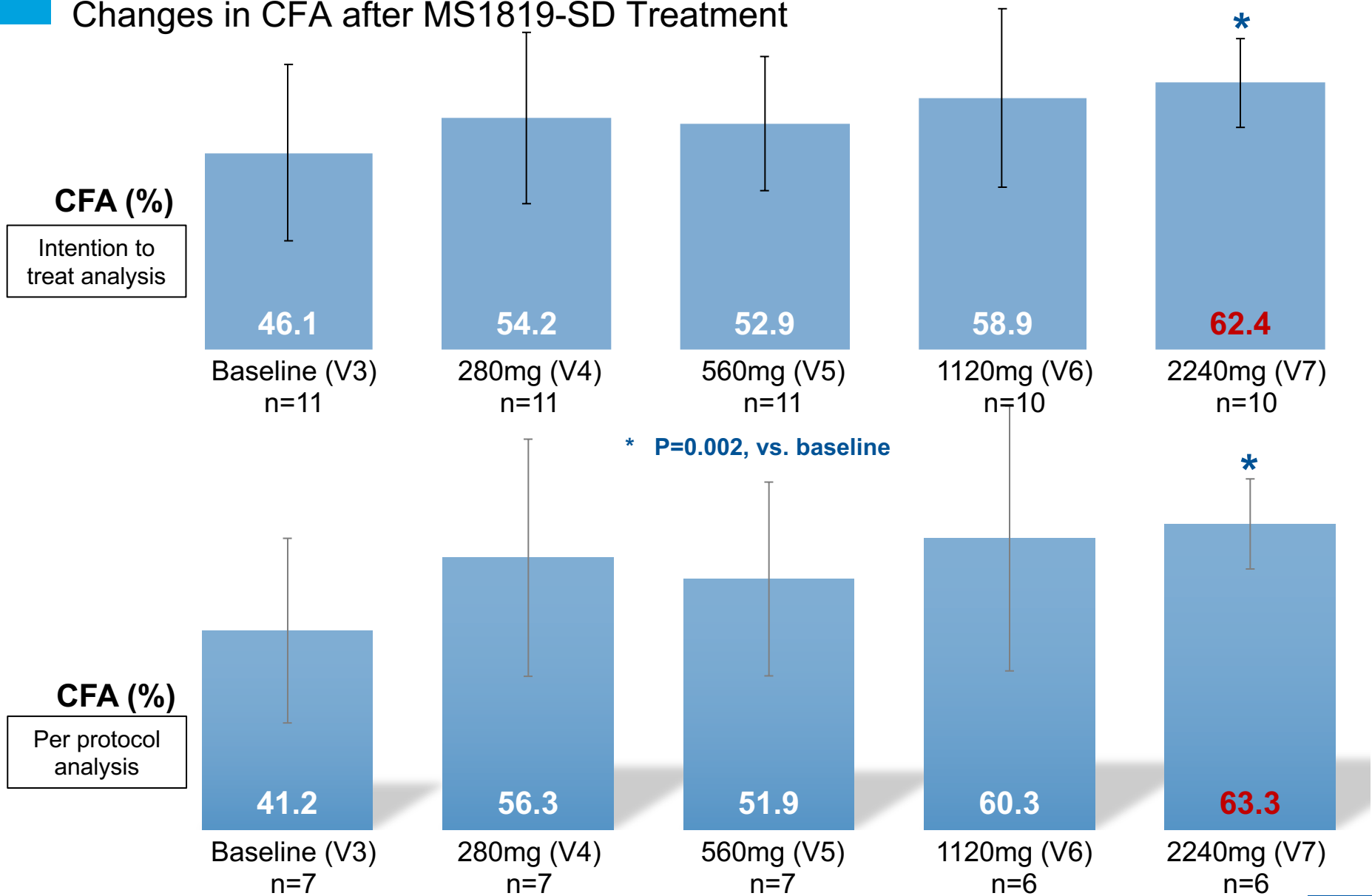
Amylases and proteases in saliva and stomach compensate in pancreatic insufficiency, but no backup exists for fat digestion



If the pancreas does not function properly, oral supplements are taken to allow for fat digestion

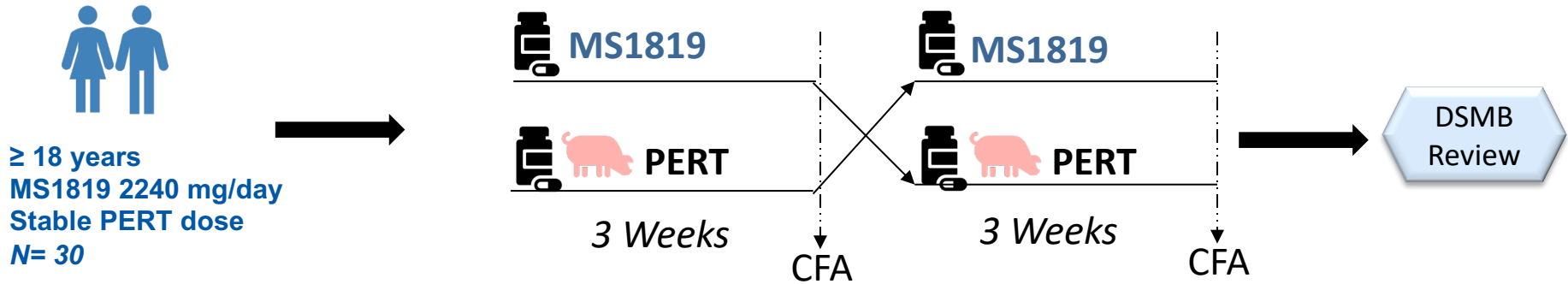
Phase 2 Chronic Pancreatitis Study

Changes in CFA after MS1819-SD Treatment



Phase 2 U.S. and E.U. OPTION Study in Cystic Fibrosis completed

A Phase 2 Open-Label, Multicenter, 2x2 Crossover Trial to assess the Safety and Efficacy of MS1819-SD in Patients with Exocrine Pancreatic Insufficiency due to Cystic Fibrosis

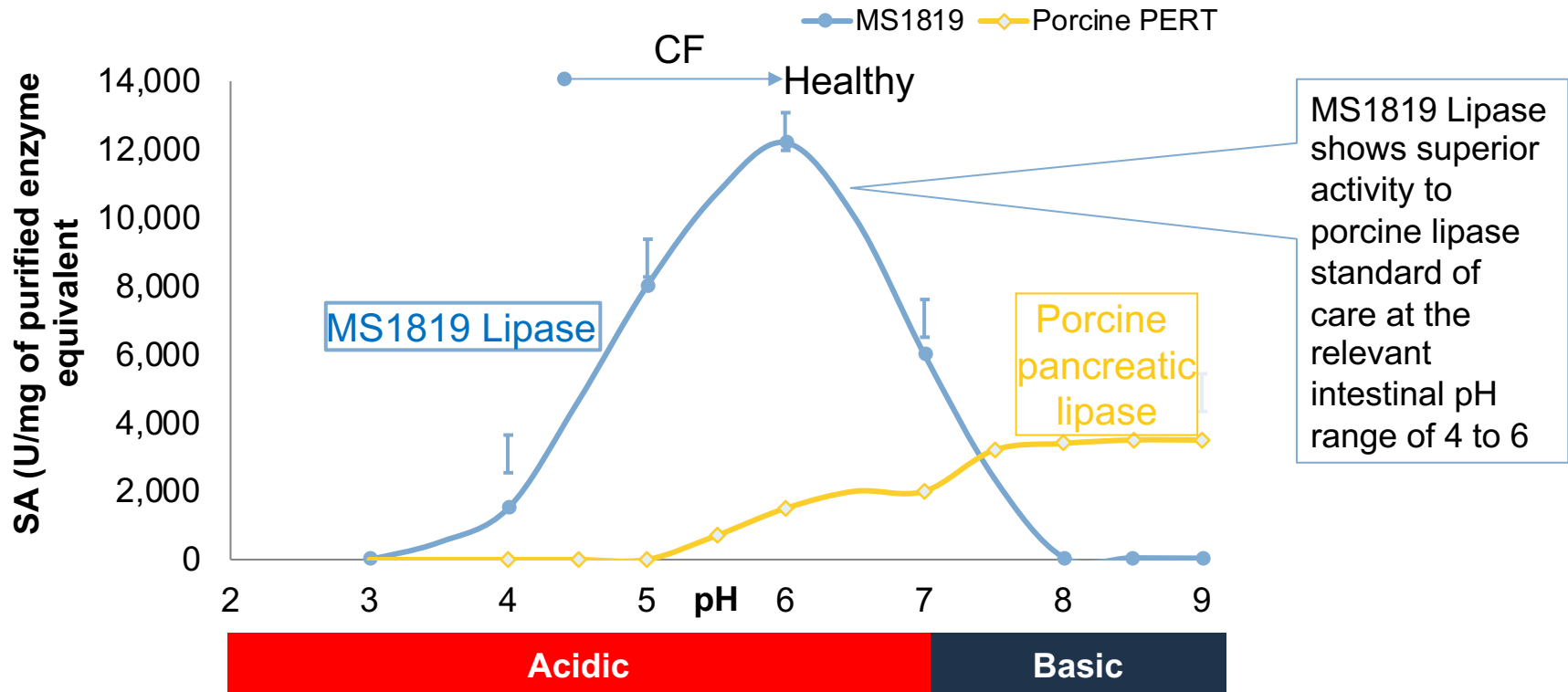


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Option

MS1819 Shows Strong Activity at Normal pH Range

In vitro lipolytic activity of the MS1819 lipase in the presence of bile salts in the European and US Pharmacopeia test (U/mg, Pure Enzyme)



Note: In normal subjects, physiological pH in duodenum is between approximately 5 and 6. In CP and CF pH is lowered to a more acidic range, approximately pH 4 to 5. MS1819 not inactivated by bile salts.

Development of MS1819 for Patients with EPI due to CF and CP

Data to date continue to support development of MS1819

Evaluation	Status	Comment
Animal Safety		Pig and rat data supports high MS1819 doses
Animal Efficacy		Efficacious in Pig EPI model
FLIP 110 Study		Initial safety in humans established
CP Ph 2 Study		2.2g dose safe, and significant improvement of CFA
CF Ph 2 OPTION		Good safety, improvements in CFA comparable to that observed in CP study
Can be used without a Protease		OPTION data in CF patients suggests that a MS1819 lipase only product is sufficient
CF Combination Study	Ongoing	Awaiting further data
Higher dose in CF		Safety data supports increasing the MS18189 dose delivered to the duodenum