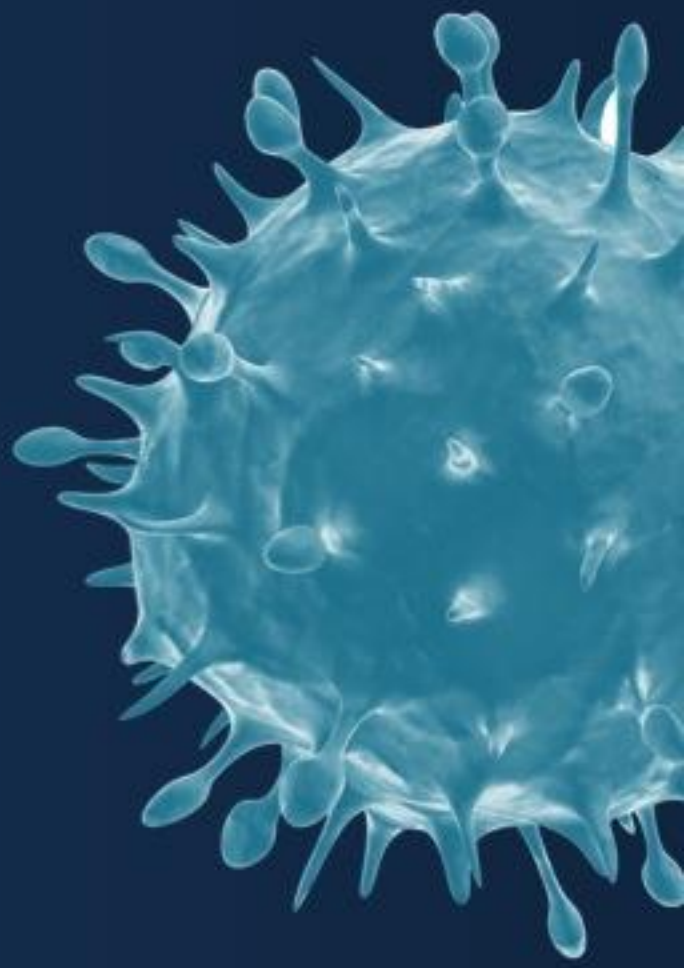
Positive 12 Month Efficacy Results

GEN-003 Immunotherapy for Genital Herpes

Phase 2 Dose Optimization Study

31 March 2016



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Highlights

- Viral shedding reductions sustained through 12 months
- Clinical efficacy at 12 months similar to a year of daily antiviral therapy
- Commercial profile strengthened with promise of once-yearly maintenance dosing
- Top performing doses already being investigated in ongoing Phase 2b trial

Agenda for Today's Call

- Pathway to GEN-003 dose selection
- Phase 2 dose optimization trial
  - Study goals
  - Positive 12-month durability data
- GEN-003 value proposition
- Ongoing Phase 2b trial
- Upcoming GEN-003 milestones
- Conclusions
- Q&A

Pathway to GEN-003 Dose Selection

- Phase 1/2a trial tested 10-fold difference in dose
  - Established clinical proof of concept with strong efficacy to 6 months post-dosing
  - Best dose of 30 µg per protein / 50 µg of Matrix-M2™ adjuvant
  - Data indicated potential better dose between 30 µg and 100 µg per protein

- Phase 2 dose optimization trial tested six combinations of protein and adjuvant
  - Established 60 µg per protein more effective than 30 µg; demonstrated adjuvant dose response
  - Selected 60 / 50 µg and 60 / 75 µg doses as most promising to advance to Phase 2b efficacy study
  - Demonstrated 12-month durability of efficacy

Phase 2 Dose Optimization Trial Design

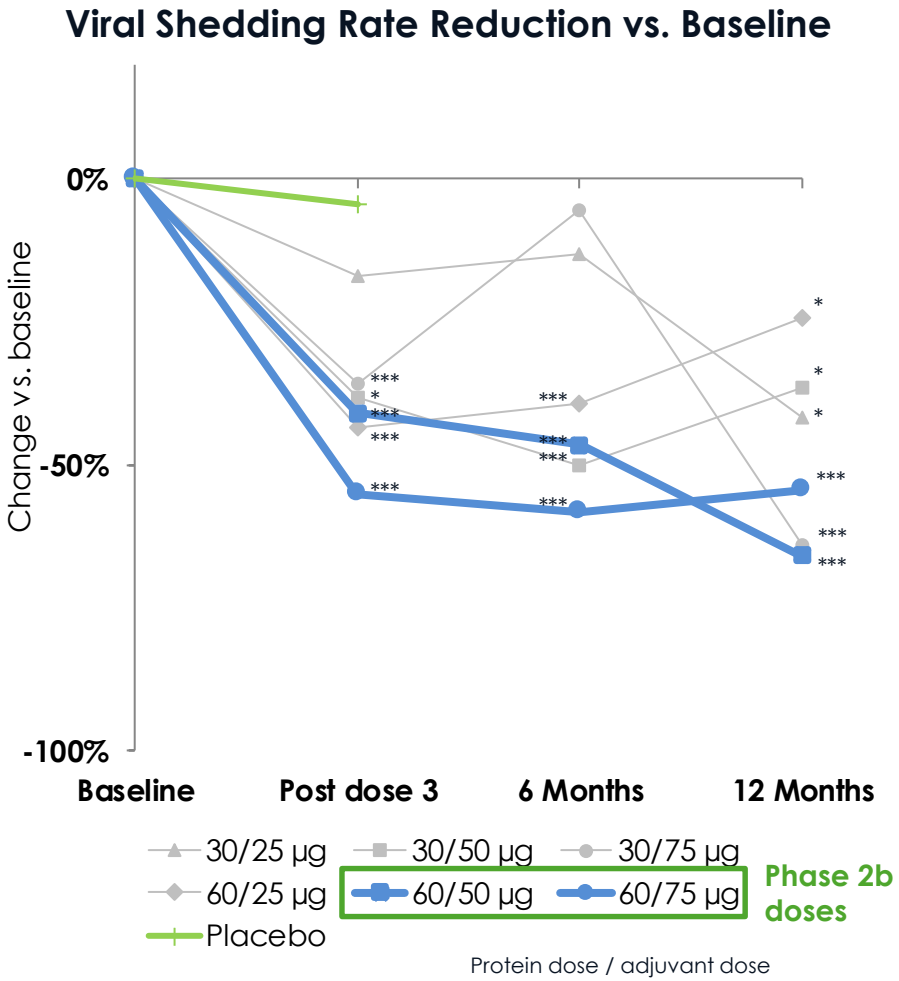
- 310 subjects with history of recurrent genital herpes
- 7 dose groups; ~45 subjects per group*

		Adjuvant dose		
		25 µg	**50 µg**	**75 µg**
Protein dose	**30 µg**	✓	✓	✓
	60 µg	✓	✓	✓
Placebo*	✓			

* Placebo patients included for the immediate post-dosing evaluation only; patients subsequently rolled into active treatment substudy

- 1° endpoint - viral shedding, collected for 28-day periods
  - Baseline (pre-dosing), post-dosing, 6 months, 12 months
- 2° endpoints
  - % recurrence-free and time to first recurrence, physician confirmed (diagnosis and DNA assay)
  - Lesion rates on same collection schedule as viral shedding, patient recorded
- Safety and tolerability, immunogenicity

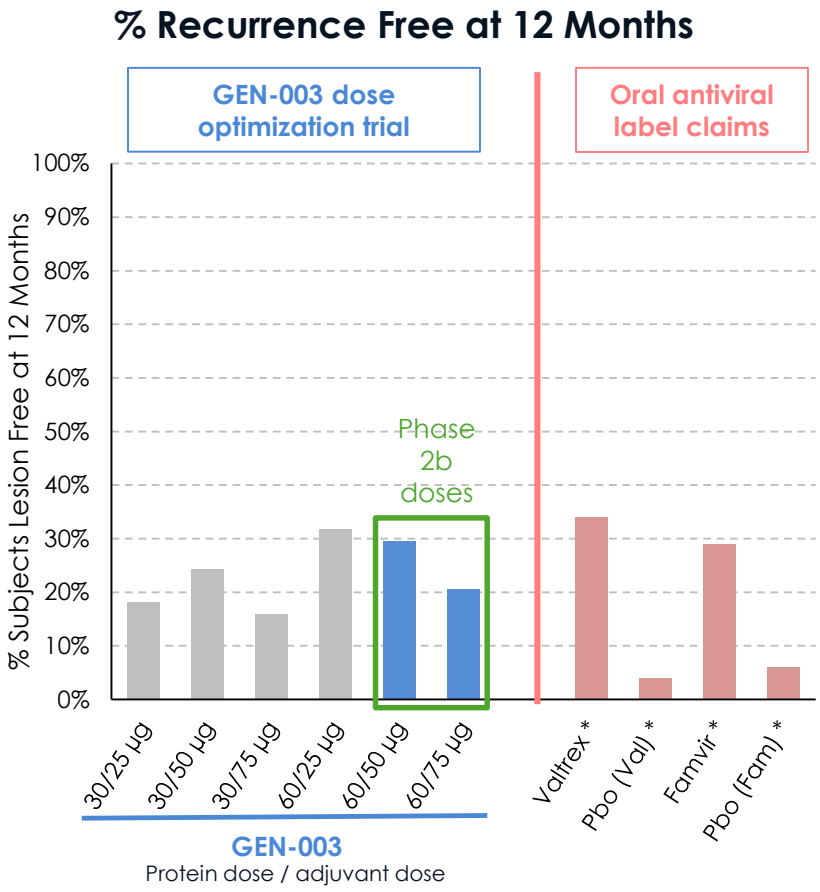
Significant Reduction in Viral Shedding Rate at 12 Months



Poisson model analysis
vs. baseline *** p<0.0001, * p<0.05

- Sustained and consistent reductions in viral shedding rate at 60/50 µg and 60/75 µg doses
- Potential for sustained effect longer than 1 year

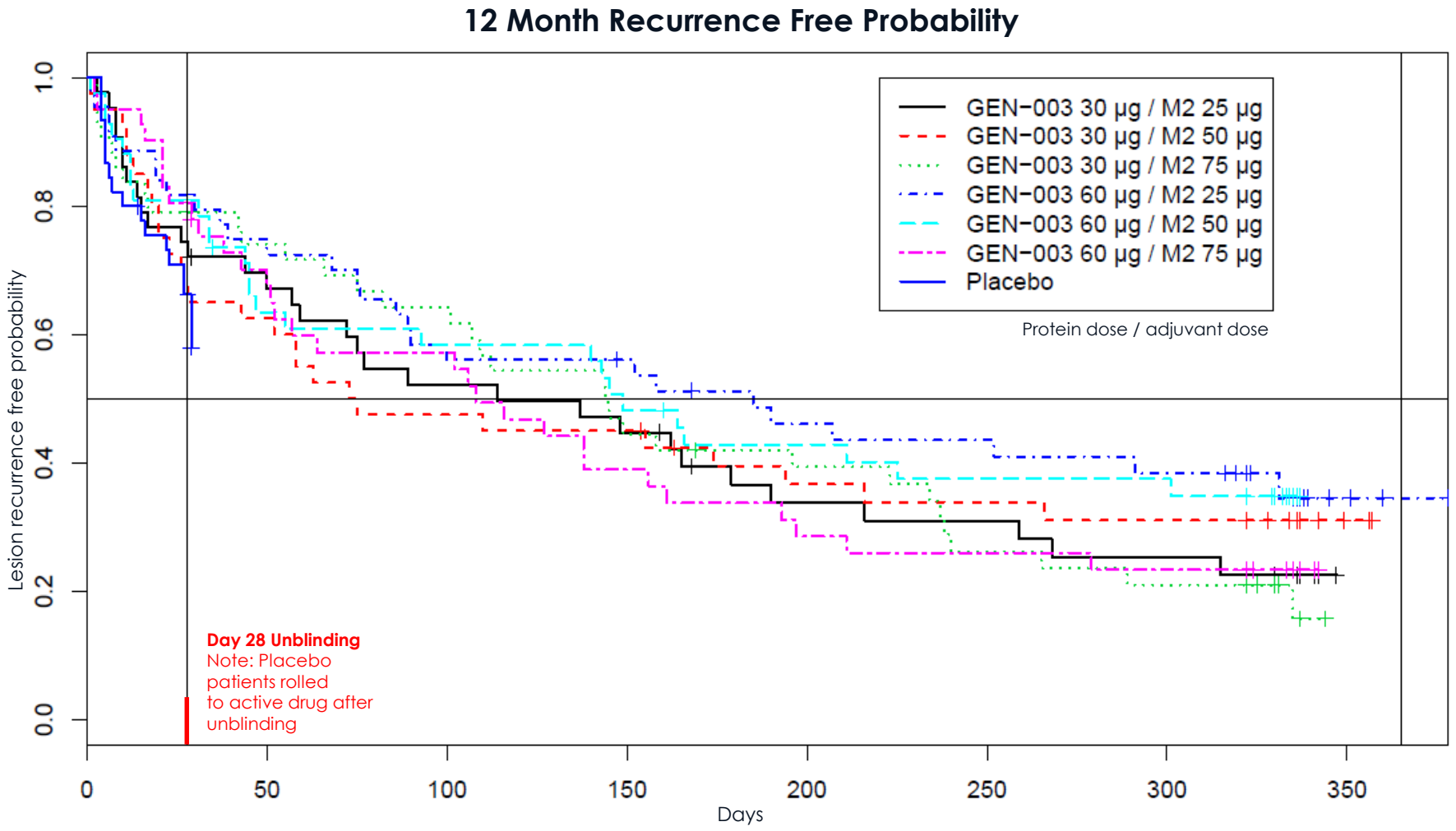
GEN-003 Offers Durable Efficacy Similar to Past Studies of Chronic Suppressive Antiviral Therapy



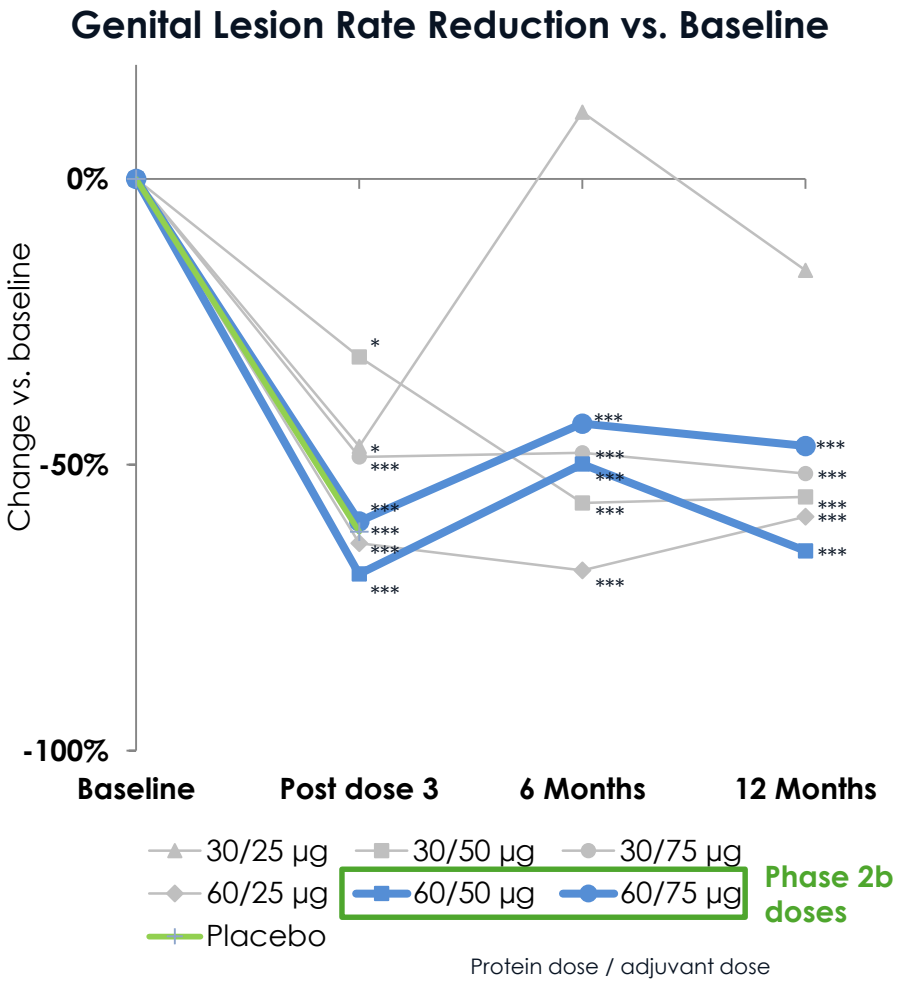
* Label claims from P3 trials; Valtrex placebo n=134, Famvir placebo n=233

- Efficacy similar to 12 months of daily oral antivirals
- No statistical differences across the doses
- Likely Phase 3 approval endpoint

Time to First Recurrence Data Consistent with % Lesion Free



Genital Lesion Rate Reduction Sustained at 12 Months



Poisson model analysis
vs. baseline *** p<0.0001, * p<0.05

- Sustained lesion rate reductions across multiple dose arms at 12 months

Upside Potential to Revenue Opportunity From Longer Sustained Clinical Efficacy

- Product profile efficacy durability doubled to 12 months vs. prior 6 months

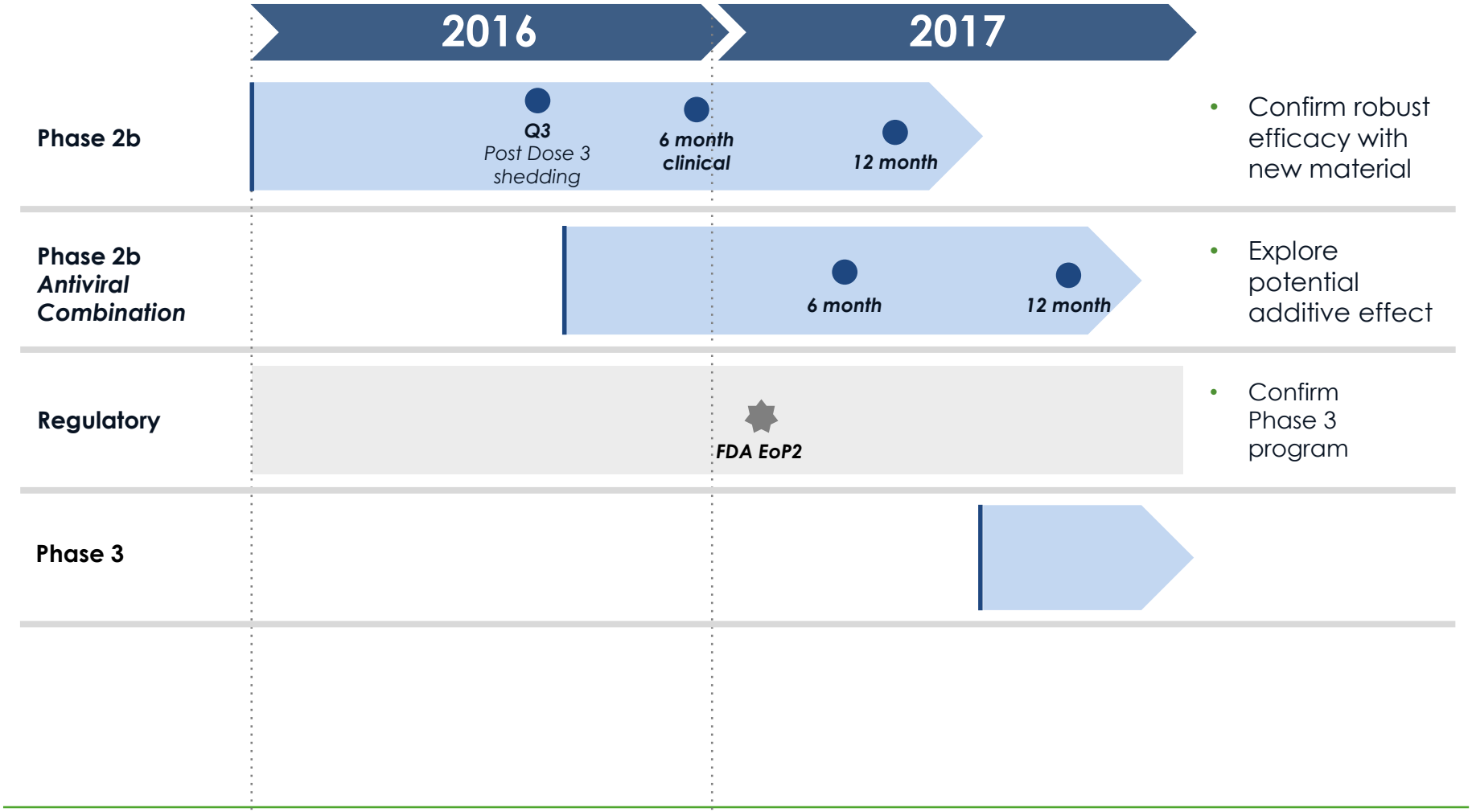
- Convenient, durable efficacy may improve upon dominant treatment paradigm (episodic anti-viral therapy)
  - Reduce outbreaks
  - Reducing shedding may reduce transmission risk

- Potential benefits vs. chronic suppressive therapy
  - Durable efficacy via novel mechanism
  - Orals for rescue therapy during outbreaks
  - Improved convenience

Ongoing Phase 2b Trial Advancing

- Goal: Confirm efficacy of GEN-003 manufactured with Phase 3 processes
- Same endpoints as Phase 2 dose optimization trial
- ~135 patients enrolled with a history of recurrent genital herpes
- 3 dose groups; ~45 patients per group, followed for 12 months
  - Placebo
  - 60 µg per protein / 50 µg of Matrix-M2
  - 60 µg per protein / 75 µg of Matrix-M2
- Dosing underway

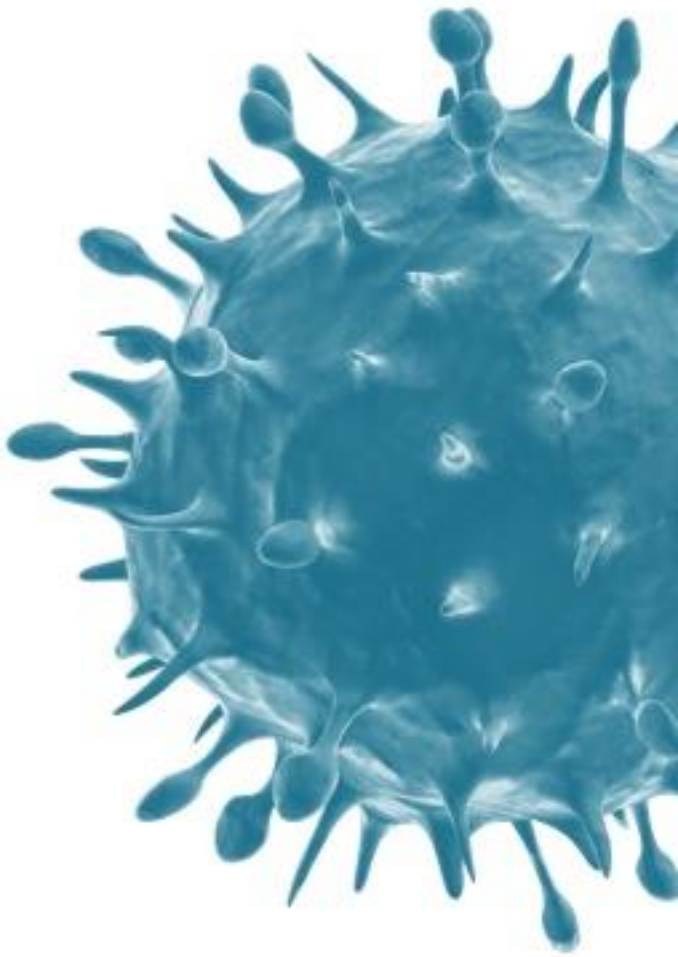
Potential 2017 Phase 3 Start for GEN-003 On Track

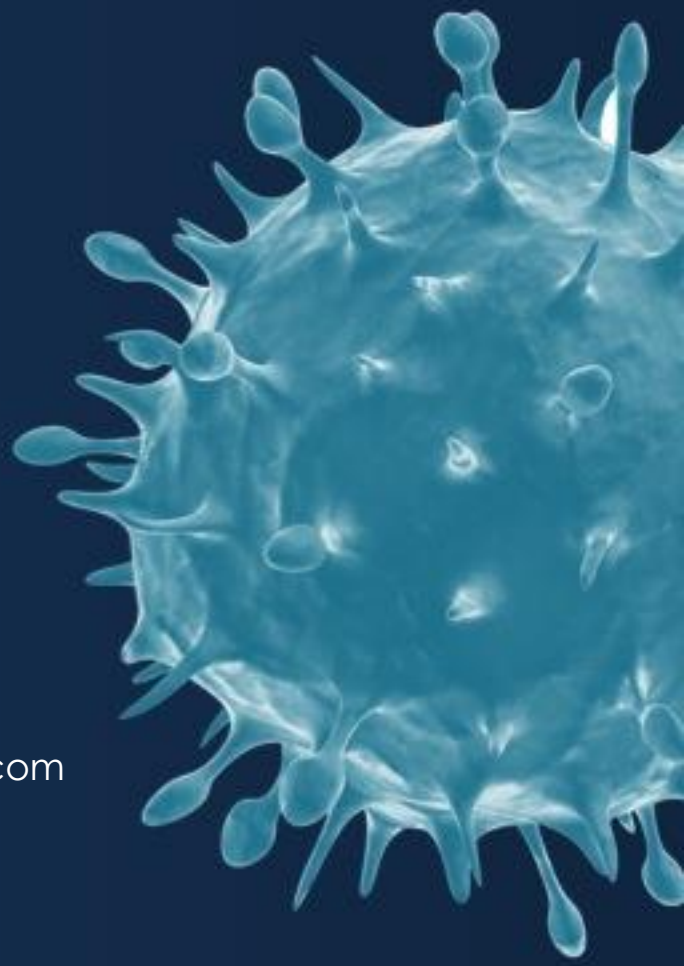


Conclusions

- Improved and sustained impact on viral activity shows potential for durable efficacy longer than 12 months
- Clinical efficacy demonstrated across likely Phase 3 endpoints
- Reinforces potential for GEN-003 to serve as cornerstone treatment for genital herpes
- Phase 2b efficacy trial progressing well
- Anticipated FDA end of Phase 2 meeting in Q1 2017

Questions & Answers





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