week after ZV. Independent positive effects on peak *memory* Th1 VZV CMI included the baseline CMI and negative effects included blood CD4+FOXP3+% T regulatory (Treg) and CD8+PD1+% T exhausted cells. Independent positive effects on peak *effector* Th1 VZV CMI included baseline CMI and negative effects included blood CD8+CD25+FOXP3+% Treg. Age did not have an independent effect on peak CMI. Independent positive effects on persistent (1 year) *memory* Th1 included baseline CMI and negative effects included age, blood CD4+FOXP3+% Treg and CD8+PD1+% T exhausted cells. Persistent *effector* Th1 CMI was negatively affected by age only.

Conclusion. ZV generated VZV-specific Th1 and CTL responses. The early increase of CD8+ exhausted T cells in blood suggested that CTL responses to the vaccine virus may be compromised by immune senescence. The negative of age on VZV Th1 CMI was fully mediated by immune senescence at peak response, but age had a negative effect on CMI persistence that was independent from the markers of immune senescence included in this study.

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1341. Humoral and Cellular Immunogenicity of Zoster Vaccine within One Year after Herpes Zoster

Eunyoung Lee, MD; June Young Chun, MD; Kyoung-Ho Song, MD; Pyeong Gyun Choe, MD; Ji Whan Bang, MD; Eu Suk Kim, MD; Hong Bin Kim, MD, PhD; Sang Won Park, MD, PhD; Nam Joong Kim, MD, PhD; Wan Beom Park, MD and Myoung-Don Oh, MD, PhD; Department of Internal Medicine, Seoul National University College of Medicine, Seoul, Korea, Republic of (South)

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Background. Herpes zoster vaccination is recommended to patients with a prior history of herpes zoster to prevent reactivation. However, the appropriate timing of vaccination is controversial. We compared immunogenicity of vaccine according to timing of vaccination after zoster illness.

Methods. In this prospective observational study, subjects were stratified into two groups by the vaccination timing since their zoster illness: 6–12 months (within-1 year group) vs. 1–5 years (after-1 year group). Blood samples were collected before and 6 weeks after vaccination of zoster vaccine live. Varicella-zoster virus (VZV)-specific IgG concentrations were measured by enzyme-linked immunosorbent assay. Interferon-gamma enzyme-linked immunosorbent spot (ELISPOT) assays were performed to assess VZV specific T-cell responses.

Results. A total of 59 patients (18 in the within-1 year group and 41 in the after-1 year group) were enrolled. Ages were not significantly different between groups. The baseline geometric mean titer (GMT) of VZV IgG was higher in the within-1 year group than in the after-1 year group (245.8 IU/mL vs. 124.9 IU/mL; P = 0.040). The geometric mean fold-rise (GMFR) of VZV IgG was lower in the within-1 year group than in the after-1 year group (1.42 vs. 2.46; P = 0.002). The GMT of spot forming cell (SFC) counts by ELISPOT at baseline and 6 weeks after vaccination were not significantly different between groups. The GMFRs of SFCs were also comparable.

Conclusion. Zoster vaccination within 1 year after zoster illness may have disadvantage in the aspect of humoral immune response (ClinicalTrials.gov number, NCT02704572).

Disclosures. **All authors:** No reported disclosures.

1342. Immunogenicity and Safety of an Adjuvanted Herpes Zoster Subunit Vaccine in Older Adults Previously Vaccinated with a Live-Attenuated Herpes Zoster Vaccine: A Phase III, Group-Matched, Clinical Trial

Katrijn Grupping, PhD[1]; Laura Campora, MD[1]; Martine Douha, MSc[1]; Thomas C. Heineman, MD, PhD[2]; Nicola P. Klein, MD, PhD[3]; Himal Lal, MD[4]; James Peterson, MD, FAAFP[5] and Lidia Oostvogels, MD[1]; [1]GSK, Wavre, Belgium, [2]Genocea Biosciences, Cambridge, MA, [3]Kaiser Permanente Vaccine Study Center, Oakland, California, [4]Pfizer Inc., Collegeville, Pennsylvania, [5]Foothill Family Clinic, Salt Lake City, Utah

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Background. Herpes zoster (HZ), caused by reactivation of varicella-zoster virus (VZV), typically manifests as a dermatomal rash and can lead to postherpetic neuralgia (PHN). HZ and PHN risk increase with age. Efficacy against HZ induced by a live-attenuated zoster vaccine (ZVL; Merck) declines following vaccination (21% in years 5–12 post-vaccination). To ensure protection, revaccination can be considered. Therefore, we assessed immunogenicity and safety of HZ/su, a non-live candidate vaccine containing VZV glycoprotein E (gE) subunit and $AS01_B$ adjuvant system (GSK), in adults previously vaccinated with ZVL ≥5 years before, (HZ-PreVac) compared with adults not vaccinated with ZVL (HZ-NonVac).

Methods. In this phase III, group-matched, open, multicenter study (NCT02581410), 2 parallel groups of adults ≥65 years of age (YOA) received 2 HZ/su doses 2 months apart. A co-primary objective was to compare humoral immune responses 1 month post-dose 2 (M3) in the 2 groups (non-inferiority criterion: upper limit [UL] of the 95% confidence interval [CI] for HZ-NonVac/HZ-PreVac adjusted anti-gE antibody geometric mean concentration [GMC] ratio <1.5). Humoral and cellular immune responses were evaluated at various time points. Solicited and unsolicited adverse events (AEs) were recorded for 7 and 30 days post each dose, respectively. Serious AEs (SAEs), HZ cases and potential immune-mediated diseases (pIMDs) will be recorded until study end. Here, we present data up to M3, as the study is still ongoing.

Results. 430 participants were vaccinated. M3 humoral immune responses in HZ-PreVac were non-inferior to those in HZ-NonVac and the co-primary objective was met as the UL of the 95% CI of the adjusted GMC ratio was 1.17 (Table 1). In addition, there were no apparent differences in CD4[2+] T-cell frequencies between groups (Figure 1). No clinically meaningful differences between frequencies of solicited AEs, unsolicited AEs or SAEs in the 2 groups were observed (Table 2). No SAEs considered vaccine-related by investigators, no suspected HZ cases and no pIMDs were reported up to M3.

Conclusion. HZ/su vaccination in adults ≥65 YOA who previously received ZVL stimulates strong immune responses and does not raise safety concerns.

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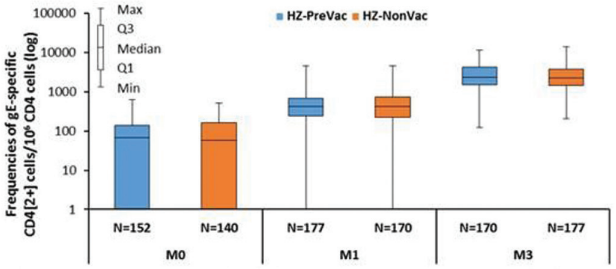
Table 1. Anti-gE antibody geometric mean concentrations (GMCs) and adjusted GMC ratio (HZ-NonVac over HZ-PreVac) (ATP cohort for immunogenicity)

	Timepoint	HZ-PreVac		HZ-NonVac		Adjusted GMC ratio (HZ-NonVac/HZ-PreVac)
		N	Value	N	Value	
GMC, mIU/mL (95% CI)	M0	204	1784.3 (1572.9–2024.1)	202	1408.5 (1203.3–1648.8)	
	M1	204	29959.0 (26633.6–33699.6)	202	25233.7 (22072.3–28848.0)	
	M3	204	49327.2 (45388.2–53608.1)	204	51618.5 (47224.8–56420.9)	
Adjusted* GMC, mIU/mL (95% CI)	M3	204	48589.4 (42649.4–55356.6)	204	50522.9 (44347.4–57558.4)	1.04 (0.92–1.17#)

gE, glycoprotein E; **ATP**, according-to-protocol; **HZ-PreVac**, participants ≥65 years of age (YOA) vaccinated with a live-attenuated zoster vaccine (ZVL) ≥5 years earlier; **HZ-NonVac**, participants ≥65 YOA not previously vaccinated with ZVL; **N**, number of participants with available results; **CI**, confidence interval; **M0**, month 0, pre-vaccination; **M1**, month 1, 1 month post-dose 1; **M3**, month 3, 1 month post-dose 2; **IU**, international unit; **#**, co-primary objective was met (upper limit of the 95% CI for GMC ratio =1.17 [pre-defined criteria: <1.5]); *****, adjusted for group-matching variable.

Figure 1. Descriptive statistics of the frequency of gE-specific CD4[2+] T-cells (ATP cohort for immunogenicity)



gE, glycoprotein E; **ATP**, according-to-protocol; **CD4[2+]**, CD4+ T-cells expressing at least 2 activation markers (IFN-γ, IL-2, TNF-α, CD40L); **HZ-PreVac**, participants ≥65 years of age (YOA) vaccinated with a live-attenuated zoster vaccine (ZVL) ≥5 years earlier; **HZ-NonVac**, participants ≥65 YOA not previously vaccinated with ZVL; **N**, number of participants with available results; **Min/Max**, minimum/maximum; **Q1**, Quartile 1 (25th percentile); **Q3**, Quartile 3 (75th percentile); **M0**, month 0, pre-vaccination; **M1**, month 1, 1 month post-dose 1; **M3**, month 3, 1 month post-dose 2.

Table 2. Frequencies of solicited and unsolicited AEs, SAEs and pIMDs (TVC)

AE		Reporting Period	HZ-PreVac		HZ-NonVac	
			N	n (% [95% CI])	N	n (% [95% CI])
Solicited Local AE	Pain	D 0–6	215	189 (**87.9** [82.8–91.9])	214	181 (**84.6** [79.0–89.1])
	Redness		215	96 (**44.7** [37.9–51.6])	214	73 (**34.1** [27.8–40.9])
	Swelling		215	50 (**23.3** [17.8–29.5])	214	37 (**17.3** [12.5–23.0])
Solicited General AE	Fatigue		215	114 (**53.0** [46.1–59.8])	214	111 (**51.9** [45.0–58.7])
	GS		215	49 (**22.8** [17.4–29.0])	214	38 (**17.8** [12.9–23.5])
	Headache		215	78 (**36.3** [29.8–43.1])	214	89 (**41.6** [34.9–48.5])
	Myalgia		215	81 (**37.7** [31.2–44.5])	214	77 (**36.0** [29.6–42.8])
	Shivering		215	51 (**23.7** [18.2–30.0])	214	37 (**17.3** [12.5–23.0])
	Fever		215	36 (**16.7** [12.0–22.4])	214	32 (**15.0** [10.5–20.4])
Unsolicited AE		D 0–29	215	78 (**36.3** [29.8–43.1])	215	52 (**24.2** [18.6–30.5])
SAE	All	From dose 1, up to 30 D post-dose 2*	215	4 (**1.9** [0.5–4.7])	215	4 (**1.9** [0.5–4.7])
	Related		215	0 (**0.0**)	215	0 (**0.0**)
pIMD			215	0 (**0.0**)	215	0 (**0.0**)

AE, adverse event; **SAE**, serious AE; **pIMD**, potential immune-mediated disease; **TVC**, total vaccinated cohort; **HZ-PreVac**, participants ≥65 years of age (YOA) vaccinated with a live-attenuated zoster vaccine (ZVL) ≥5 years earlier; **HZ-NonVac**, participants ≥65 YOA not previously vaccinated with ZVL; **N**, number of participants with a least one documented (solicited AEs) or administered (unsolicited AEs, SAEs, pIMDs) dose; **n/%**, number/percentage of participants reporting the AE at least once; **95% CI**, exact 95% confidence interval; **GS**, gastrointestinal symptoms; **Fever**, temperature ≥ 37.5°C for oral, axillary or tympanic route, or ≥ 38.0°C for rectal route; **D**, day; **D 0–6**, 7 days post each dose; **D 0–29**, 30 days post each dose; **Related**, AEs assessed by the investigator to be casually related to vaccination; **AEs** are presented as overall/participant; *****, SAEs and pIMDs will be recorded until study end.

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