

**Supplementary Table II.** Comparative insights to our candidate vaccines

S. no.	Parameters	Vaccine Candidates						
		Vi-TT		OSP-T2544	Vi-T2544		CTB-T2544	
1.	Delivery Route	Subcutaneous (SC)/ intramuscular (IM)		Subcutaneous	Subcutaneous (SC)/ intramuscular (IM)		Intranasal	
2.	Dose	25 µg of Vi		8 µg O-SP and 24 µg rT2544 in the conjugate	25 µg Vi and 29 µg rT2544 in the conjugate		60 µg	
3.	Repeated booster	3 doses at 14 days interval		3 doses at 14 days interval	3 doses at 14 days interval		3 doses at 12 days interval	
4.	Immunogenicity	SC	IM	SC	SC	IM	IN	
	Serum antibody (IgG titer value)	Anti Vi=3200	Anti Vi=1280	Anti OSP=25600 Anti-rT2544=51200	Anti-rT2544 IgG 12800	Anti Vi=6400 Anti-rT2544=51200	Anti-rT2544 IgG 12800	
	Mucosal antibody (IgA titer value)	Anti Vi, Serum = 320 Intestinal Lavage=160 Fecal extract=80	Anti Vi, Serum = 160 Intestinal Lavage=80 Fecal extract=80	Anti OSP, Serum = 640 Intestinal Lavage=320 Fecal extract=160	Anti-rT2544 Serum =2560 Intestinal Lavage = 2560 Fecal extract =1280	Anti Vi, Serum = 640 Intestinal Lavage=160 Fecal extract=160	Anti-rT2544 Serum =2560 Intestinal Lavage = 2560 Fecal extract =1280	
	Antibody secreting cells (ASCs) (% of rT2544 specific ASCs out of total ASCs)	NA		NA	NA		IgA ASCs-Spleen and MLN =30% PP= 44% IgG ASCs-Spleen and MLN =12% PP= 22%	
	Functional potency of antibodies	NA		NA	NA		Yes	
5.	Adhesion Inhibition capacity	NA		NA	NA		Yes	
	Opsano-phagocytic ability	NA		NA	NA		Yes	
	Motility	No		Yes	No		Yes	
	Bactericidal activity	SC	On 38d <i>S. Typhi</i> = 800 <i>S. Paratyphi A</i> =NA		On 38d <i>S. Typhi</i> = 1600 <i>S. Paratyphi A</i> =12800 <i>S. Typhimurim</i> =6400 <i>S. Enteritidis</i> =1600	SC	On 38d <i>S. Typhi</i> = 3200 <i>S. Paratyphi A</i> =12800	NA
		IM (120d)	On 140d <i>S. Typhi</i> = 1600 <i>S. Paratyphi A</i> =N		On 120d <i>S. Typhi</i> = 3200 <i>S. Paratyphi A</i> =25600 <i>S. Typhimurim</i> =12800 <i>S. Enteritidis</i> =3200	IM (38d) <i>S. Typhi</i> = 6400 <i>S. Paratyphi A</i> =25600	IM (140d) <i>S. Typhi</i> = 1600 <i>S. Paratyphi A</i> =6400	
	IM (172d)	On 172d <i>S. Typhi</i> = 800 <i>S. Paratyphi A</i> =NA			IM (140d) <i>S. Typhi</i> = 3200 <i>S. Paratyphi A</i> =12800			

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		Vi-TT	OSP-T2544	Vi-T2544	CTB-T2544
6.	Cell mediated immune response	Th1/Th2	Th1/Th2	Th1/Th2	Th1/Th2/Th17
	Cytokines responded	Th1 (IFN $\gamma$ ) and Th2 (IL-4, IL-10)	Th1 (IFN $\gamma$ , TNF- $\alpha$ ) and Th2 (IL-4, IL-10, IL-6)	Th1 (IFN $\gamma$ ) and Th2 (IL-4, IL-10)	Th1 (IL-12, IFN- $\gamma$ ), Th2 (IL-4, IL-5, IL-10) and IL-17A
	Cytotoxic T lymphocytic assay	NA	NA	NA	NA
	Follicular Helper T cell (T <sub>FH</sub> ) (CXCR5+, PD-1+, CD4+ cells)	NA	NA	NA	6% T <sub>FH</sub>
7.	Gut homing memory response	NA	NA	NA	Yes, B & T lymphocytes expressing gut homing markers
8.	Memory B response	Observed till 140 days in mice	Observed till 120 days in mice	Observed till 140 days in mice	Observed till 120 days in mice
9.	Memory T cell subsets	Observed till 130 days in mice	Observed till 110 days in mice	Observed till 130 days in mice	Observed till 120 days in mice
10.	CD4+ T cells secreting IFN $\gamma$	Observed till 130 days in mice	Yes, observed till 110 days in mice.	Observed till 130 days in mice	Yes, Observed till 120 days in mice
11.	Protection in mice	60% for <i>S. Typhi</i> (SC) 40% for <i>S. Typhi</i> (IM) No protection was observed	75% for <i>S. Typhi</i> 77% <i>S. Paratyphi A</i> 80% <i>S. typhimurium</i>	90% for <i>S. Typhi</i> (SC) 77% for <i>S. Typhi</i> (IM) 80% for <i>S. Paratyphi A</i> (SC) 70% for <i>S. Paratyphi A</i> (IM)	70% for <i>S. Typhi</i> 80% for <i>S. Paratyphi A</i>
12.	Cross protection	NA	55-60% <i>S. enteritidis</i>	NA	Cholera toxin
13.	Current status	Commercially available	Preclinical and in negotiation for advancement of technology transfer	Preclinical	Preclinical
14.	Reference	Unpublished	<sup>90</sup>	Unpublished	81

Vi-TT, Vi conjugated to tetanus toxoid; OSP-T2544, O polysaccharide conjugated to T2544; Vi-T2544, Vi conjugated polysaccharide linked to T2544; CTB-T2544, cholera toxin B genetically fused to T2544; Ig, immunoglobulin; NA, Not available