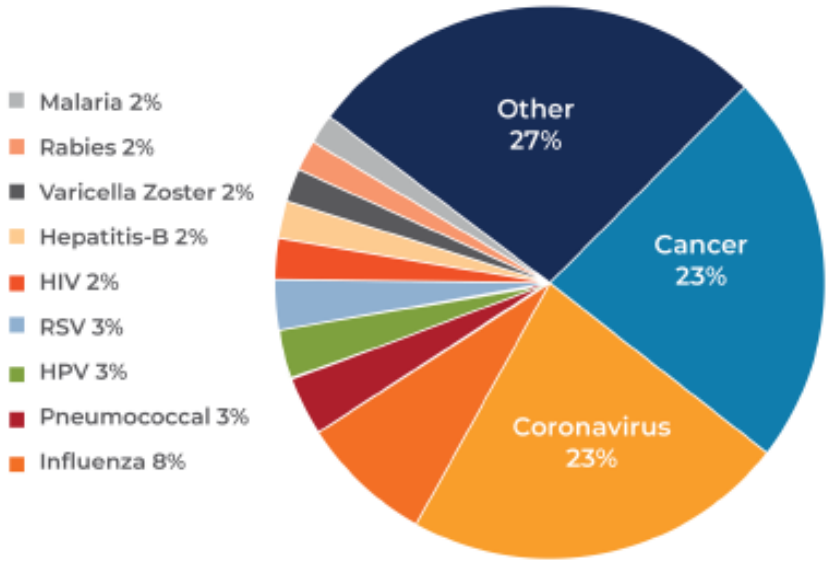
Best-Of Vaccins 2024

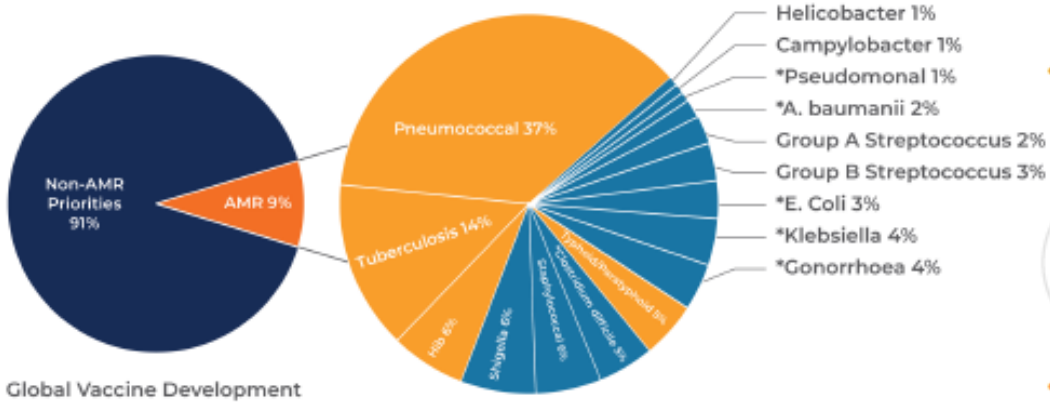
Pr Amandine Gagneux-Brunon

Vaccine Pipeline by Disease Area
(Pre-clinical – Phase III as of Feb. 2023)



25 WHO and CDC Priority AMR Pathogens

Vaccine Development for WHO and CDC Identified AMR Threats
(Pre-clinical – Phase III as of Feb. 2023)



Global Vaccine Development

ıalysis based on Citeline, Pharmaprojects data for ongoing, active vaccine development as of February 16, 2

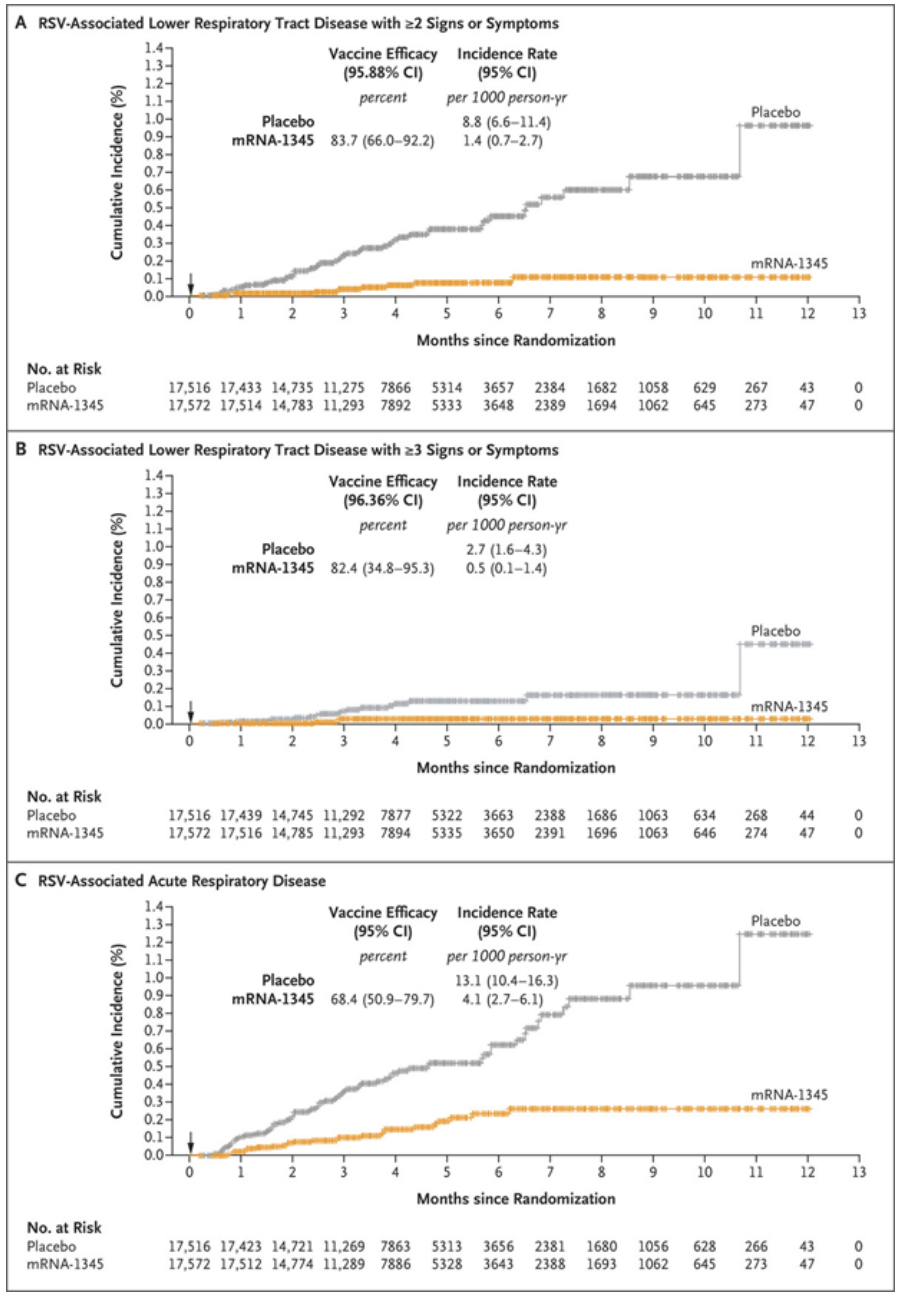
Focus sur le VRS

ORIGINAL ARTICLE

Efficacy and Safety of an mRNA-Based RSV PreF Vaccine in Older Adults

E. Wilson, J. Goswami, A.H. Baqui, P.A. Doreski, G. Perez-Marc, K. Zaman, J. Monroy, C.J.A. Duncan, M. Ujiie, M. Rämet, L. Pérez-Breva, A.R. Falsey, E.E. Walsh, R. Dhar, L. Wilson, J. Du, P. Ghaswalla, A. Kapoor, L. Lan, S. Mehta, R. Mithani, C.A. Panozzo, A.K. Simorellis, B.J. Kuter, F. Schödel, W. Huang, C. Reuter, K. Slobod, S.K. Stoszek, C.A. Shaw, J.M. Miller, R. Das, and G.L. Chen, for the ConquerRSV Study Group*

Essai de phase 2/3 du vaccin mRNA 1345
Plus de 35,000 participants de plus de 60 ans
Immunodépression = critère d'exclusion



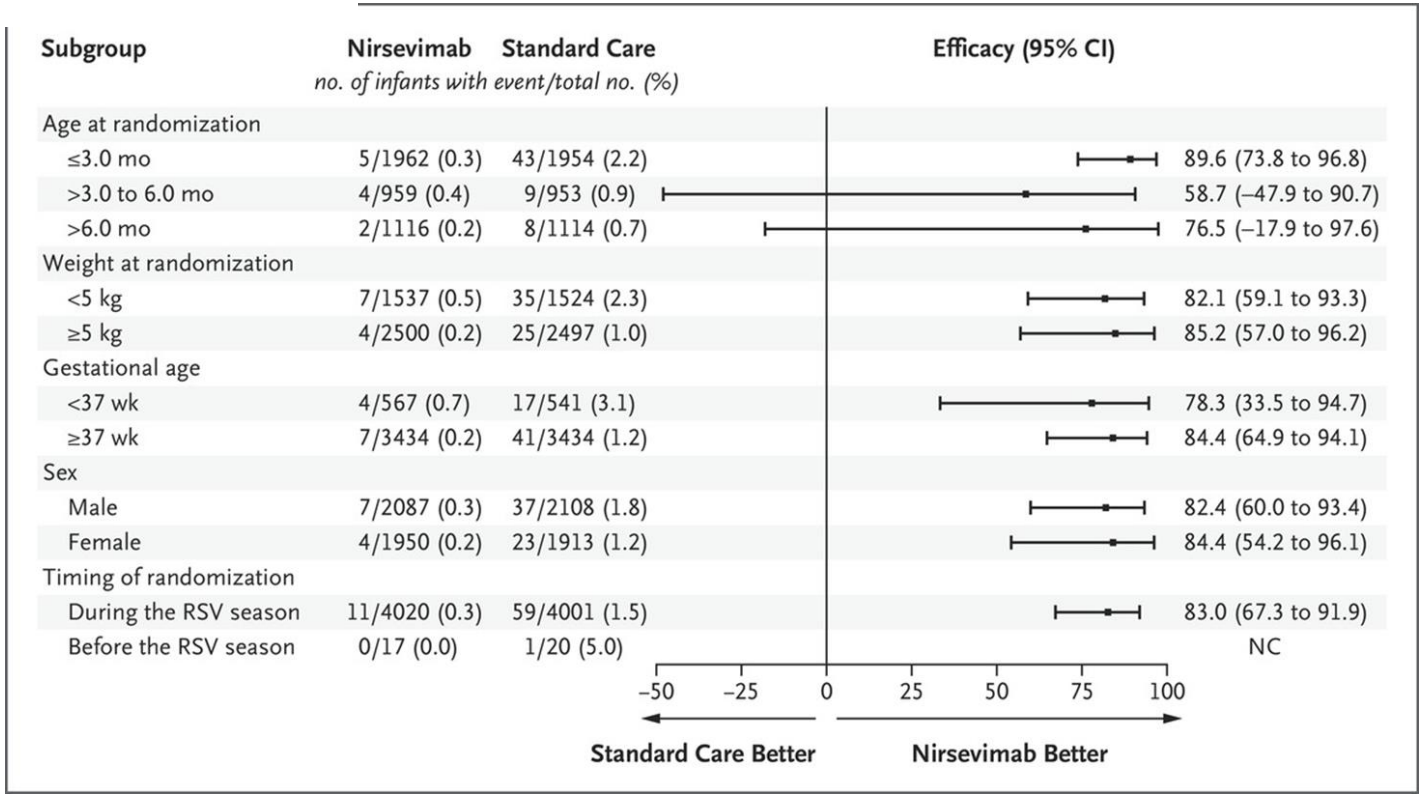
E Wilson et al. N Engl J Med 2023;389:2233-2244.

The NEW ENGLAND JOURNAL of MEDICINE

ORIGINAL ARTICLE

Nirsevimab for Prevention of Hospitalizations Due to RSV in Infants

S.B. Drysdale, K. Cathie, F. Flamein, M. Knuf, A.M. Collins, H.C. Hill, F. Kaiser, R. Cohen, D. Pinquier, C.T. Felter, N.C. Vassilouthis, J. Jin, M. Bangert, K. Mari, R. Nteene, S. Wague, M. Roberts, P. Tissières, S. Royal, and S.N. Faust, for the HARMONIE Study Group*



Subgroup	Nirsevimab	Standard Care	Efficacy (95% CI)
	no. of infants with event/total no. (%)		
Age at randomization			
≤3.0 mo	5/1962 (0.3)	43/1954 (2.2)	89.6 (73.8 to 96.8)
>3.0 to 6.0 mo	4/959 (0.4)	9/953 (0.9)	58.7 (–47.9 to 90.7)
>6.0 mo	2/1116 (0.2)	8/1114 (0.7)	76.5 (–17.9 to 97.6)
Weight at randomization			
<5 kg	7/1537 (0.5)	35/1524 (2.3)	82.1 (59.1 to 93.3)
≥5 kg	4/2500 (0.2)	25/2497 (1.0)	85.2 (57.0 to 96.2)
Gestational age			
<37 wk	4/567 (0.7)	17/541 (3.1)	78.3 (33.5 to 94.7)
≥37 wk	7/3434 (0.2)	41/3434 (1.2)	84.4 (64.9 to 94.1)
Sex			
Male	7/2087 (0.3)	37/2108 (1.8)	82.4 (60.0 to 93.4)
Female	4/1950 (0.2)	23/1913 (1.2)	84.4 (54.2 to 96.1)
Timing of randomization			
During the RSV season	11/4020 (0.3)	59/4001 (1.5)	83.0 (67.3 to 91.9)
Before the RSV season	0/17 (0.0)	1/20 (5.0)	NC

SB Drysdale et al. N Engl J Med 2023;389:2425-2435.

Rapid communication

Open Access

Early estimates of nirsevimab immunoprophylaxis effectiveness against hospital admission for respiratory syncytial virus lower respiratory tract infections in infants, Spain, October 2023 to January 2024

Mónica López-Lacort[1,2,*], Cintia Muñoz-Quiles[1,2,*], Ainara Mira-Iglesias[1,2], F Xavier López-Labrador[2,3,4], Beatriz Mengual-Chuliá[2,3], Carlos Fernández-García[1], Mario Carballido-Fernández[5,6], Ana Pineda-Caplliure[7], Juan Mollar-Maseres[8], Maruan Shalabi Benavent[9], Francisco Sanz-Herrero[10], Matilde Zornoza-Moreno[11], Jaime Jesús Pérez-Martín[11], Santiago Alfayate-Miguelez[11], Rocío Pérez Crespo[12], Encarnación Bastida Sánchez[12], Ana Isabel Menasalvas-Ruiz[13], Mª Cinta Téllez-González[13], Samuel Esquiva Soto[13], Carlos Del Toro Saravia[14], Iván Sanz-Muñoz[15], José María Eiros[15], Vanesa Matías Del Pozo[16], Marina Toquero-Asensi[16], Eliseo Pastor-Villalba[17], José Antonio Lluch-Rodrigo[17], Javier Díez-Domingo[1,2,18], Alejandro Orrico-Sánchez[1,2,18]

View Affiliations

Taux d'immunisation variant de 78 à 98 % par nirsevimab

Taux d'infections chez les enfants de moins de 9 mois en Espagne

Effectiveness of nirsevimab against hospitalisation in infants by the screening method and test-negative design, three regions in Spain, October 2023–January 2024 (n = 166 admissions)

Method	RSV-LRTI (n = 95)		Negative RSV-LRTI (n = 71)	
	(1−OR) x 100	95% CI	(1−OR) x 100	95% CI
Screening				
Murcia	86.9	77.1 to 92.9	27.5	−47.3 to 66.2
Valencia	69.3	36.4 to 86.2	19.6	−180.8 to 82.3
Valladolid	97.0	87.7 to 99.6	NA	
Pooled data	84.4	76.8 to 90.0	32.4	−27.5 to 63.4[a]
Test-negative design				
Pooled data	70.2	38.3 to 88.5[a]	NA	

Maladies « + ou – » tropicales

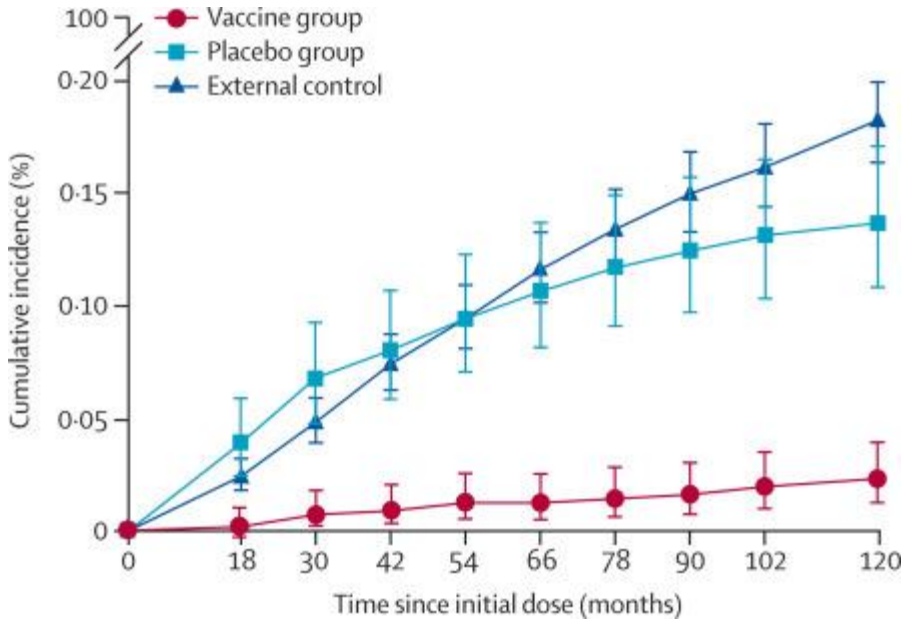
Long-term efficacy of a recombinant hepatitis E vaccine in adults: 10-year results from a randomised, double-blind, placebo-controlled, phase 3 trial

Shoujie Huang*, Xuefeng Zhang*, Yingying Su*, Chunlan Zhuang*, Zimin Tang*, Xingcheng Huang, Qi Chen, Kongxin Zhu, Xiaowen Hu, Dong Ying, Xiaohui Liu, Hanmin Jiang, Xia Zang, Zhongze Wang, Changlin Yang, Donglin Liu, Yijun Wang, Quan Tang, Wentong Shen, Huanhuan Cao, Huirong Pan, Shengxiang Ge, Yue Huang, Ting Wu†, Zizheng Zheng†, Fengcai Zhu†, Jun Zhang†, Ningshao Xia†

Summary

Background Hepatitis E virus (HEV) is a frequently overlooked causative agent of acute hepatitis. Evaluating the long-term durability of hepatitis E vaccine efficacy holds crucial importance.

Published Online
February 19, 2024
https://doi.org/10.1016/
S0140-6736(23)02234-1



Hepatitis E vaccine Hecolin (Xiamen Innovax Biotech®)
En 2015, l'OMS considérait que les données à long terme et les données de sécurité étaient insuffisantes pour positionner ce vaccin mis sur la marché en 2015
Evaluation à 10 ans
Essai randomisé 1:1 avec plus de 110 000 participants dans différentes zones en Chine
Cohorte de contrôle externe

Utilisation de ce vaccin lors d'une campagne réactive au Soudan en 2022

Seasonal vaccination with RTS,S/AS01$_E$ vaccine with or without seasonal malaria chemoprevention in children up to the age of 5 years in Burkina Faso and Mali: a double-blind, randomised, controlled, phase 3 trial

Alassane Dicko, Jean-Bosco Ouedraogo*, Issaka Zongo, Issaka Sagara, Matthew Cairns, Rakiswendé Serge Yerbanga, Djibrilla Issiaka, Charles Zoungrana, Youssoufa Sidibe, Amadou Tapily, Frédéric Nikièma, Frédéric Sompougdou, Koualy Sanogo, Mahamadou Kaya, Hama Yalcouye, Oumar Mohamed Dicko, Modibo Diarra, Kalifa Diarra, Ismaila Thera, Alassane Haro, Abdoul Aziz Sienou, Seydou Traore, Almahamoudou Mahamar, Amagana Dolo, Irene Kuepfer, Paul Snell, Jane Grant, Jayne Webster, Paul Milligan, Cynthia Lee, Christian Ockenhouse, Opokua Ofori-Anyinam, Halidou Tinto, Abdoulaye Djimde, Daniel Chandramohan†, Brian Greenwood†*

Summary

Background Seasonal vaccination with the RTS,S/AS01$_E$ vaccine combined with seasonal malaria chemoprevention (SMC) prevented malaria in young children more effectively than either intervention given alone over a 3 year period. The objective of this study was to establish whether the added protection provided by the combination could be sustained for a further 2 years.

Lancet Infect Dis 2024; 24: 75–86
Published Online August 22, 2023

Cette stratégie combinée de prophylaxie médicamenteuse et vaccination avait été montrée efficace en 2021 chez l'enfant de moins de 3 ans, depuis elle est recommandée par l'OMS.

Quid à 5 ans ?

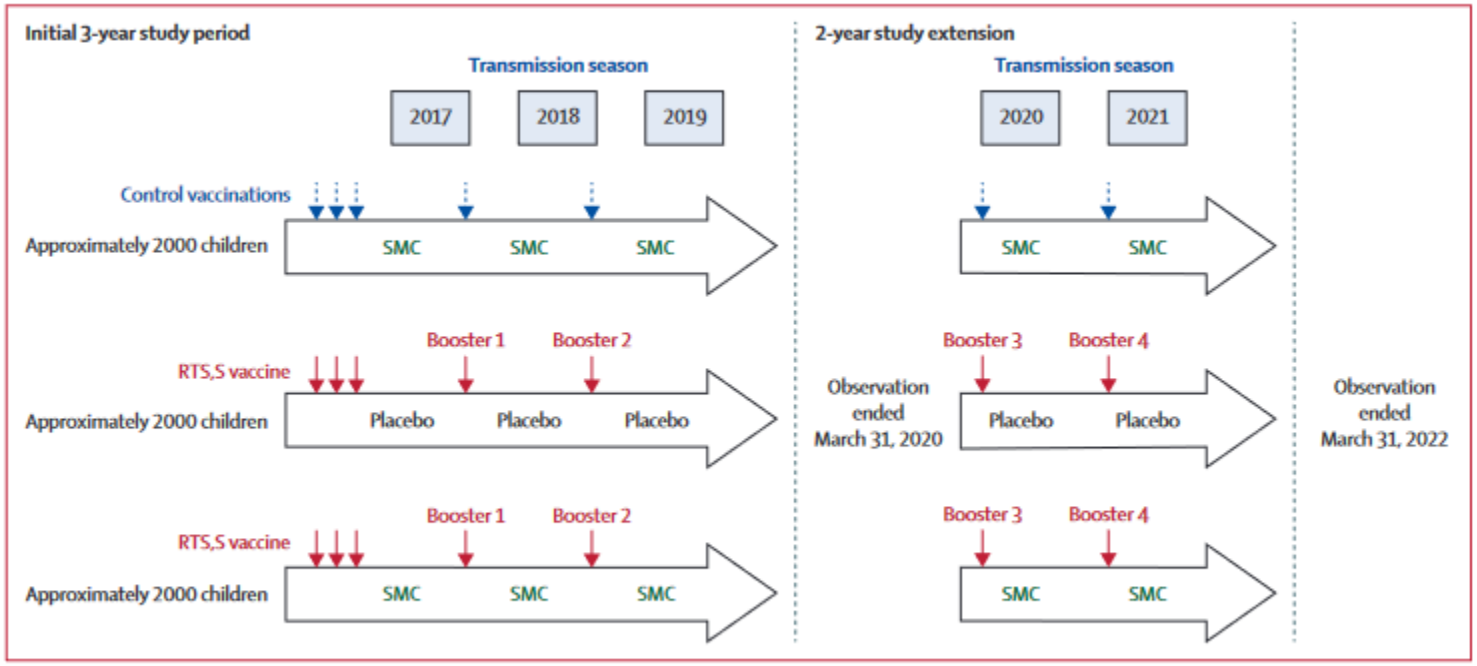


Figure 1: **Overall study design**
Only children aged below 5 years on June 1, 2021 were eligible to receive study interventions in 2021. SMC=seasonal malaria chemoprevention.

	Child-years at risk	Events	Rate per 1000 child years at risk	Protective efficacy (95% CI) combined *vs* seasonal malaria chemoprevention alone	Protective efficacy (95% CI) combined *vs* RTS,S/AS01$_E$ alone
Whole study, both countries					
Seasonal malaria chemoprevention alone	7887·0	2472	313·4 (301·3 to 326·0)	1 (ref)	..
RTS,S/AS01$_E$-alone	7937·8	2537	319·6 (307·4 to 332·3)	−3·0% (−11·8 to 5·2)	1 (ref)
Combined	7957·4	1055	132·6 (124·8 to 140·8)	57·7% (53·3 to 61·7)	59·0% (54·7 to 62·8)
Whole study, Burkina Faso					
Seasonal malaria chemoprevention alone	3775·0	1482	392·6 (373·1 to 413·1)	1 (ref)	..
RTS,S/AS01$_E$-alone	3695·6	1617	437·6 (416·7 to 459·4)	−11·5% (−22·1 to −1·8)	1 (ref)
Combined	3799·0	678	178·5 (165·5 to 192·4)	54·7% (49·2 to 59·6)	59·3% (54·4 to 63·7)
Whole study, Mali					
Seasonal malaria chemoprevention alone	4111·9	990	240·8 (226·2 to 256·2)	1 (ref)	
RTS,S/AS01$_E$-alone	4242·2	920	216·9 (203·3 to 231·3)	9·60% (−5·67 to 22·6)	1 (ref)
Combined	4158·4	377	90·7 (82·0 to 100·3)	62·3% (54·8 to 68·6)	58·3% (49·9 to 65·4)
Year 4, both countries					
Seasonal malaria chemoprevention alone	1669·4	562	336·7 (309·9 to 365·7)	1 (ref)	..
RTS,S/AS01$_E$-alone	1687·6	648	384·0 (355·5 to 414·7)	−14·9% (−30·5 to −1·2)	1 (ref)
Combined	1695·4	300	176·9 (158·0 to 198·1)	47·5% (38·8 to 54·9)	54·3% (47·0 to 60·6)
Year 5, both countries					
Seasonal malaria chemoprevention alone	729·2	249	341·5 (301·6 to 386·6)	1 (ref)	..
RTS,S/AS01$_E$-alone	679·1	349	513·9 (462·7 to 570·7)	−49·5% (−79·3 to −24·6)	1 (ref)
Combined	713·1	131	183·7 (154·8 to 218·0)	46·8% (33·2 to 57·7)	64·4% (55·8 to 71·4)

Table 1: **Protective efficacy against cases of clinical malaria during the 5-year study period and during the 2-year extension period**

Le Cameroun lance la première vaccination systématique au monde contre le paludisme

Plus de 300 000 doses du vaccin du groupe pharmaceutique britannique GSK avaient été livrés au Cameroun le 21 novembre.

franceinfo avec AFP
France Télévisions

Cameroun : lancement de la première campagne de vaccination systématique au monde contre le paludisme

Par Le Figaro avec AFP
Publié le 22/01/2024 à 11:00, mis à jour le 22/01/2024 à 11:30

Lutte contre le paludisme : l'Afrique à un « tournant » grâce au déploiement du nouveau vaccin

Après une phase pilote, des millions de doses sont acheminées au Sénégal, au Burkina, au Bénin, au Liberia, en RDC, au Niger, en Sierra Leone, au Burundi et en Ouganda. Le Cameroun a même fait le choix de l'intégrer directement à sa vaccination de routine.

Le Monde avec AFP
Publié le 22 janvier 2024 à 12h26, modifié le 23 janvier 2024 à 11h03 · Lecture 3 min.

Safety and efficacy of malaria vaccine candidate R21/Matrix-M in African children: a multicentre, double-blind, randomised, phase 3 trial

Mehreen S Datoo, Alassane Dicko, Halidou Tinto*, Jean-Bosco Ouédraogo, Mainga Hamaluba†, Ally Olotu†, Emma Beaumont, Fernando Ramos Lopez, Hamtandi Magloire Natama, Sophie Weston, Mwajuma Chemba, Yves Daniel Compaore, Djibrilla Issiaka, Diallo Salou, Athanase M Some, Sharon Omenda, Alison Lawrie, Philip Bejon, Harish Rao, Daniel Chandramohan, Rachel Roberts, Sandesh Bharati, Lisa Stockdale, Sunil Gairola, Brian M Greenwood, Katie J Ewer‡, John Bradley, Prasad S Kulkarni, Umesh Shaligram, Adrian V S Hill, the R21/Matrix-M Phase 3 Trial Group§*

Summary

Background **Recently, we found that a new malaria vaccine, R21/Matrix-M, had over 75% efficacy against clinical malaria with seasonal administration in a phase 2b trial in Burkina Faso. Here, we report on safety and efficacy of the vaccine in a phase 3 trial enrolling over 4800 children across four countries followed for up to 18 months at seasonal sites and 12 months at standard sites.**

Lancet 2024; 403: 533–44
Published Online
February 1, 2024
https://doi.org/10.1016/

4644 enfants de moins de 36 mois
Environ 25 % sans prophylaxie médicamenteuse saisonnière
Bon profil de tolérance

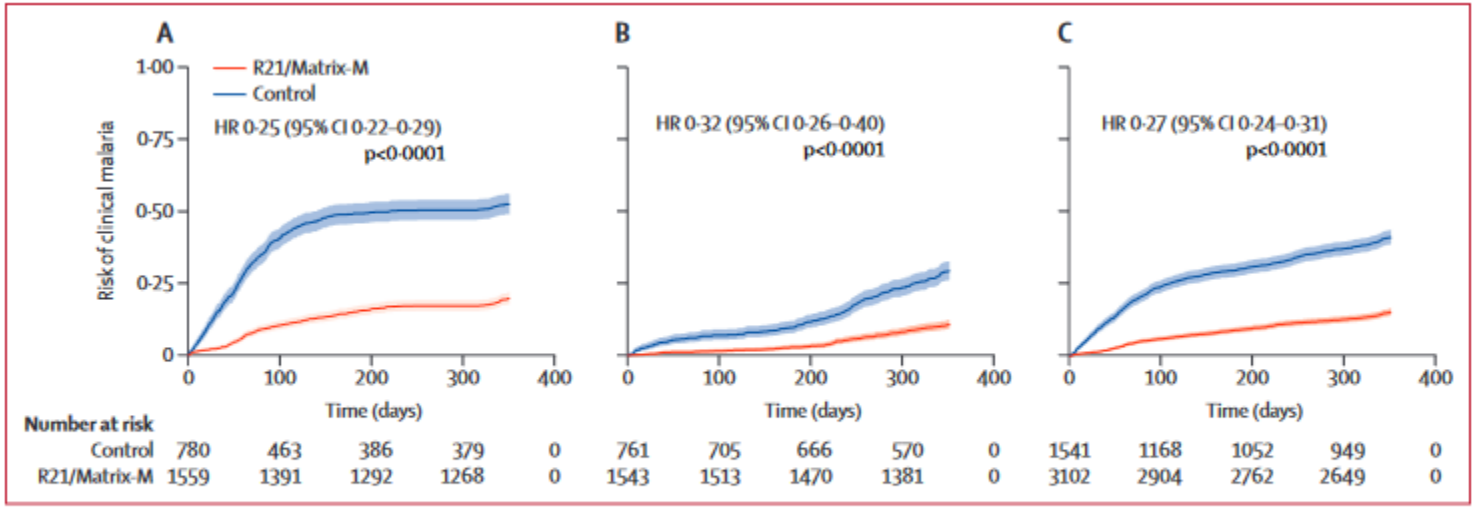


Figure 2: **Kaplan-Meier estimates of the time to first episode of clinical malaria in the modified per-protocol population at seasonal sites (A), standard sites (B), and all sites (C)**
Data begin from 14 days after the third vaccination in the primary series to 12 months. Seasonal sites were Bougouni and Nanoro; and standard sites were Dande and the East Africa sites Bagamoyo and Kilifi.

Safety and immunogenicity of a single-shot live-attenuated chikungunya vaccine: a double-blind, multicentre, randomised, placebo-controlled, phase 3 trial

Martina Schneider, Marivic Narciso-Abraham, Sandra Hadl, Robert McMahon, Sebastian Toepfer, Ulrike Fuchs, Romana Hochreiter, Annegret Bitzer, Karin Kosulin, Julian Larcher-Senn, Robert Mader, Katrin Dubischar, Oliver Zoihsl, Juan-Carlos Jaramillo, Susanne Eder-Lingelbach, Vera Buerger, Nina Wressnigg

Lancet 2023; 401: 2138–47
Published Online June 12, 2023

Summary

Background VLA1553 is a live-attenuated vaccine candidate for active immunisation and prevention of disease caused by chikungunya virus. We report safety and immunogenicity data up to day 180 after vaccination with VLA1553.

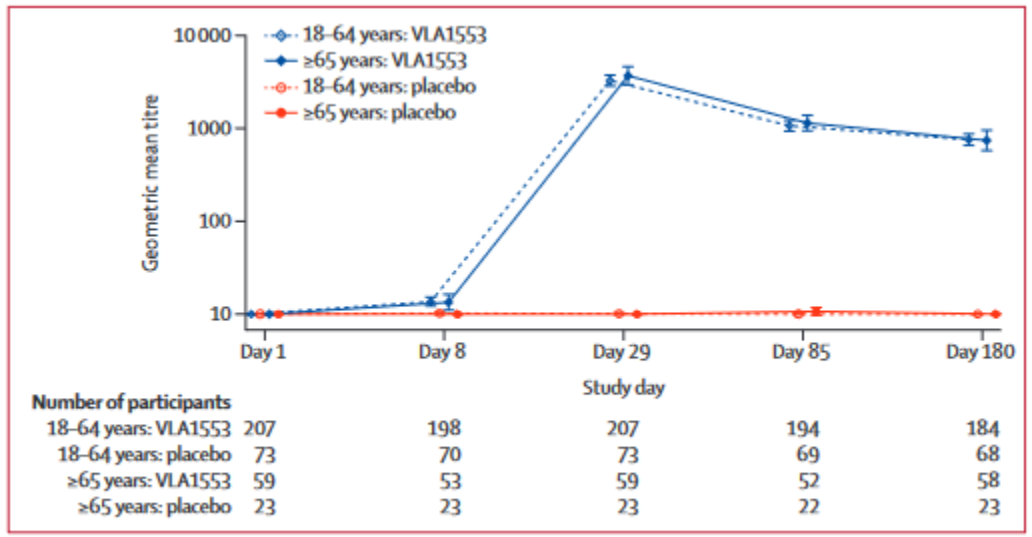


Figure 2: **Assessment of neutralising antibodies after vaccination**

	VLA1553 (n=3082)	Placebo (n=1033)	Total (n=4115)
Any adverse events	1926 (62·5%, 60·8–64·2) 6415	463 (44·8%, 41·8–47·9) 1071	2389 (58·1%, 56·5–59·6) 7486
Any related adverse events	1575 (51·1%, 49·3–52·9) 4621	322 (31·2%, 28·4–34·1) 647	1897 (46·1%, 44·6–47·6) 5268
Any related severe adverse events	62 (2·0%, 1·5–2·6) 70	1 (0·1%, 0·0–0·5) 3	63 (1·5%, 1·2–2·0) 73
Any serious adverse events	46 (1·5%, 1·1–2·0) 73	8 (0·8%, 0·3–1·5) 10	54 (1·3%, 1·0–1·7) 83
Any related serious adverse events	2 (0·1%, 0·0–0·2) 2	0 (0%, 0·0–0·4) 0	2 (0·0%, 0·0–0·2) 2
Any adverse events of special interest	10 (0·3%, 0·2–0·6) 26	1 (0·1%, 0·0–0·5) 2	11 (0·3%, 0·1–0·5) 28
Any adverse event with a frequency ≥10% in at least one study arm			
Headache	986 (32·0%, 30·3–33·7) 1028	160 (15·5%, 13·3–17·8) 178	1146 (27·8%, 26·5–29·2) 1206
Fatigue	886 (28·7%, 27·2–30·4) 893	137 (13·3%, 11·3–15·5) 139	1023 (24·9%, 23·5–26·2) 1032
Myalgia	750 (24·3%, 22·8–25·9) 758	82 (7·9%, 6·4–9·8) 84	832 (20·2%, 19·0–21·5) 842
Arthralgia	554 (18·0%, 16·6–19·4) 589	63 (6·1%, 4·7–7·7) 70	617 (15·0%, 13·9–16·1) 659
Injection site pain	413 (13·4%, 12·2–14·7) 519	101 (9·8%, 8·0–11·8) 122	514 (12·5%, 11·5–13·5) 641
Pyrexia	427 (13·9%, 12·7–15·1) 429	13 (1·3%, 0·7–2·1) 13	440 (10·7%, 9·8–11·7) 442
Nausea	359 (11·6%, 10·5–12·8) 364	63 (6·1%, 4·7–7·7) 64	422 (10·3%, 9·3–11·2) 428
Any serious adverse event with a frequency ≥0·2% in at least one study arm by system organ class			
Infections and infestations	9 (0·3%, 0·1–0·6) 9	3 (0·3%, 0·1–0·8) 3	12 (0·3%, 0·2–0·5) 12
Injury, poisoning, and procedural complications	8 (0·3%, 0·1–0·5) 15	1 (0·1%, 0·0–0·5) 1	9 (0·2%, 0·1–0·4) 16
Psychiatric disorders	7 (0·2%, 0·1–0·5) 8	2 (0·2%, 0·0–0·7) 4	9 (0·2%, 0·1–0·4) 12
Cardiac disorders	5 (0·2%, 0·1–0·4) 7	0 (0%, 0·0–0·4) 0	5 (0·1%, 0·0–0·3) 7

Data are n (%, 95% CI) N. For each category, participants were included only once, even if they experienced multiple events in that category. Related adverse events are those recorded as probably related or possibly related on the eCRF. Adverse events of special interest counts are for the overall event and the adverse event of special interest symptom count includes a count of all symptoms contributing to the event. Two-sided exact Clopper-Pearson 95% CIs are presented. eCRF=electronic case report form. n=number of participants. N=number of events.

Table 3: **Overall summary of adverse events (safety population)**

VALNEVA SE
Campus Bio-Ouest | 6, Rue Alain Bombard
44800 Saint-Herblain, *France*

Valneva reçoit l'approbation par la U.S. FDA du premier vaccin au monde contre le chikungunya, IXCHIQ®

Saint-Herblain (France), 10 novembre 2023 – Valneva SE (Nasdaq: VALN; Euronext Paris: VLA), société spécialisée dans les vaccins, a annoncé aujourd'hui que la Food and Drug Administration (FDA) des États-Unis a approuvé IXCHIQ®, vaccin vivant atténué à injection unique, pour la prévention de la maladie causée par le virus du chikungunya (CHIKV) chez les personnes âgées de 18 ans et plus présentant un risque accru d'exposition au CHIKV. Cette indication du vaccin a été approuvée dans le cadre de la procédure d'autorisation accélérée, sur la base des titres d'anticorps neutralisants contre le CHIKV. Le maintien de l'autorisation pour cette indication est subordonné à la vérification du bénéfice clinique dans un ou plusieurs essais de confirmation.

Long-term efficacy and safety of a tetravalent dengue vaccine (TAK-003): 4·5-year results from a phase 3, randomised, double-blind, placebo-controlled trial

Vianney Tricou, Delia Yu*, Humberto Reynales, Shibadas Biswal, Xavier Saez-Llorens, Chukiat Sirivichayakul, Pio Lopez, Charissa Borja-Tabora, Lulu Bravo, Pope Kosalaraksa, Luis Martinez Vargas, Maria Theresa Alera, Luis Rivera, Veerachai Watanaveeradej, Reynaldo Dietze, LakKumar Fernando, V Pujitha Wickramasinghe, Edson Duarte Moreira Jr, Asvini D Fernando, Dulanie Gunasekera, Kleber Luz, Ana Lucia Oliveira, Suely Tuboi, Ian Escudero, Yanee Hutagalung, Eric Lloyd, Martina Rauscher, Olaf Zent, Nicolas Folschweiller, Inge LeFevre, Felix Espinoza†, Derek Wallace†*

Summary

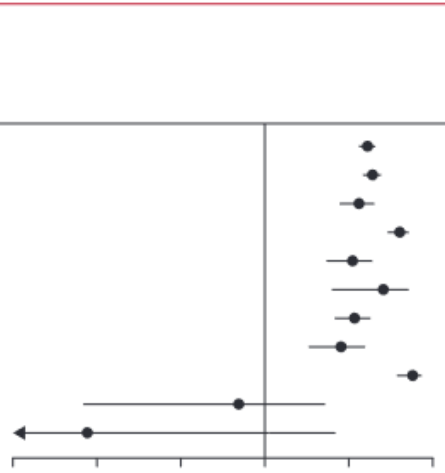
Background About half of the world's population lives in dengue-endemic areas. We aimed to evaluate the long-term efficacy and safety of two doses of the tetravalent dengue vaccine TAK-003 in preventing symptomatic dengue disease of any severity and due to any dengue virus (DENV) serotypes in children and adolescents.

Lancet Glob Health 2024; 12: e257–70

See Comment page e179

A Virologically confirmed dengue

	n/N (%)		Efficacy, % (95% CI)
	Placebo	TAK-003	
Overall	547/6687 (8·2%)	442/13 380 (3·3%)	61·2 (56·0 to 65·8)
Seropositive	394/4854 (8·1%)	295/9663 (3·1%)	64·2 (58·4 to 69·2)
DENV-1	151/4854 (3·1%)	133/9663 (1·4%)	56·1 (44·6 to 65·2)
DENV-2	135/4854 (2·8%)	54/9663 (0·6%)	80·4 (73·1 to 85·7)
DENV-3	97/4854 (2·0%)	96/9663 (1·0%)	52·3 (36·7 to 64·0)
DENV-4	20/4854 (0·4%)	12/9663 (0·1%)	70·6 (39·9 to 85·6)
Seronegative	153/1832 (8·4%)	147/3714 (4·0%)	53·5 (41·6 to 62·9)
DENV-1	79/1832 (4·3%)	89/3714 (2·4%)	45·4 (26·1 to 59·7)
DENV-2	58/1832 (3·2%)	14/3714 (0·4%)	88·1 (78·6 to 93·3)
DENV-3	16/1832 (0·9%)	36/3714 (1·0%)	−15·5 (−108·2 to 35·9)
DENV-4	3/1832 (0·2%)	12/3714 (0·3%)	−105·6 (−628·7 to 42·0)



Enfants et adolescents de 4 à 16 ans
72 % séropositifs à la randomisation
Données à long terme à 4,5 ans

Peu de cas d'infections par un sérotype 3

B Hospitalised virologically confirmed dengue

Overall	**142/6687 (2·1%)**	**46/13 380 (0·3%)**	**84·1 (77·8 to 88·6)**
Seropositive	101/4854 (2·1%)	29/9663 (0·3%)	85·9 (78·7 to 90·7)
DENV-1	24/4854 (0·5%)	16/9663 (0·2%)	66·8 (37·4 to 82·3)
DENV-2	59/4854 (1·2%)	5/9663 (<0·1%)	95·8 (89·6 to 98·3)
DENV-3	15/4854 (0·3%)	8/9663 (<0·1%)	74·0 (38·6 to 89·0)
DENV-4	3/4854 (<0·1%)	0/9663 (--)	100·0 (NE)
Excluding Sri Lanka	53/4422 (1·2%)	18/8802 (0·2%)	83·3 (71·4 to 90·2)
DENV-1	22/4422 (0·5%)	11/8802 (0·1%)	75·1 (48·7 to 87·9)
DENV-2	18/4422 (0·4%)	2/8802 (<0·1%)	94·4 (76·0 to 98·7)
DENV-3	11/4422 (0·2%)	5/8802 (<0·1%)	78·3 (37·4 to 92·4)
DENV-4	2/4422 (<0·1%)	0/8802 (--)	100·0 (NE)
Seronegative	41/1832 (2·2%)	17/3714 (0·5%)	79·3 (63·5 to 88·2)
DENV-1	14/1832 (0·8%)	6/3714 (0·2%)	78·4 (43·9 to 91·7)
DENV-2	23/1832 (1·3%)	0/3714 (--)	100·0 (NE)
DENV-3	3/1832 (0·2%)	11/3714 (0·3%)	−87·9 (−573·4 to 47·6)
DENV-4	1/1832 (<0·1%)	0/3714 (--)	100·0 (NE)
Excluding Sri Lanka	19/1564 (1·2%)	10/3181 (0·3%)	73·5 (42·9 to 87·7)
DENV-1	12/1564 (0·8%)	5/3181 (0·2%)	78·9 (40·1 to 92·6)
DENV-2	3/1564 (0·2%)	0/3181 (--)	100·0 (NE)
DENV-3	3/1564 (0·2%)	5/3181 (0·2%)	15·3 (−254·4 to 79·8)
DENV-4	1/1564 (<0·1%)	0/3181 (--)	100·0 (NE)

The NEW ENGLAND JOURNAL of MEDICINE

ESTABLISHED IN 1812 FEBRUARY 1, 2024 VOL. 390 NO. 5

Live, Attenuated, Tetravalent Butantan–Dengue Vaccine in Children and Adults

E.G. Kallás, M.A.T. Cintra, J.A. Moreira, E.G. Patiño, P.E. Braga, J.C.V. Tenório, V. Infante, R. Palacios, M.V.G. de Lacerda, D.B. Pereira, A.J. da Fonseca, R.Q. Gurgel, I.C.-B. Coelho, C.J.F. Fontes, E.T.A. Marques, G.A.S. Romero, M.M. Teixeira, A.M. Siqueira, A.M.P. Barral, V.S. Boaventura, F. Ramos, E. Elias Júnior, J. Cassio de Moraes, D.T. Covas, J. Kalil, A.R. Precioso, S.S. Whitehead, A. Esteves-Jaramillo, T. Shekar, J.-J. Lee, J. Macey, S.G. Kelner, B.-A.G. Coller, F.C. Boulos, and M.L. Nogueira

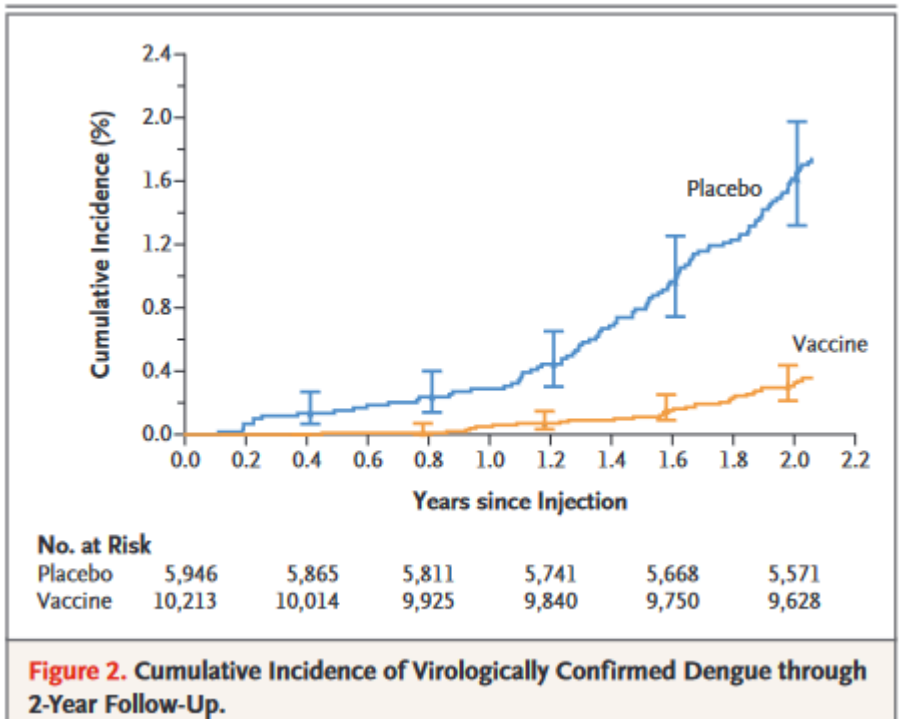


Figure 2. Cumulative Incidence of Virologically Confirmed Dengue through 2-Year Follow-Up.

Essai randomisé 2:1
16 235 participants

3 groupes d'âge: 2-6 ans, 7-17 ans, 18-59 ans

Efficacité variant de 73 % (53-85,6) chez les moins de 7 ans séronégatifs, à 95 % chez les 18-60 ans (68,5-99,8%) séropositifs

Un best-of sans vaccin COVID? Toujours pas

Undervaccination and severe COVID-19 outcomes: meta-analysis of national cohort studies in England, Northern Ireland, Scotland, and Wales

The HDR UK COALESCE Consortium*

Lancet 2024; 403: 554–66
Published Online January 15, 2024
https://doi.org/10.1016/S0140-6736(23)02467-4

See Comment page 508

Summary

Background Undervaccination (receiving fewer than the recommended number of SARS-CoV-2 vaccine doses) could be associated with increased risk of severe COVID-19 outcomes—ie, COVID-19 hospitalisation or death—compared with full vaccination (receiving the recommended number of SARS-CoV-2 vaccine doses). We sought to determine the factors associated with undervaccination, and to investigate the risk of severe COVID-19 outcomes in people who were undervaccinated in each UK nation and across the UK.

68,2 millions de personnes
44,4 % sont considérés comme sous-vaccinés

Les « sous-vaccinés » sont ceux avec le moins de ressources économiques, les hommes, ceux avec un grand nombre de FDR de COVID grave, les minorités ethniques

	Number of events	Person-time, 1000 person-years	Event rate, per 1000 person-years	Unadjusted HR (95% CI)	Adjusted HR (95% CI)
5–15 years age group					
0	75	538	0·14	Reference	Reference
1	482	1737	0·28	1·62 (1·30–2·02)	1·28 (0·98–1·67)
2	135	521	0·26	1·59 (1·22–2·06)	2·41 (1·76–3·30)
16–74 years age group					
0	13 796	10 663	1·29	Reference	Reference
1	2163	2755	0·79	0·59 (0·56–0·62)	1·26 (1·19–1·32)
2	554	480	1·15	0·86 (0·79–0·93)	1·88 (1·71–2·06)
3	2404	3523	0·68	0·53 (0·51–0·55)	1·50 (1·42–1·57)
≥75 years age group					
0	12 361	1580	7·83	Reference	Reference
1	5968	326	18·33	2·61 (2·54–2·69)	2·70 (2·61–2·78)
2	1075	44	24·66	3·16 (2·97–3·36)	3·13 (2·93–3·34)
3	196	7	27·92	3·74 (3·25–4·30)	3·61 (3·13–4·17)
4	1184	83	14·24	1·80 (1·69–1·91)	3·08 (2·89–3·29)

Counts are rounded to the nearest 5 in England and to the nearest 10 in Scotland, Northern Ireland, and Wales. Counts of below 10 were suppressed in accordance with statistical disclosure rules implemented by trusted research environments. Counts suppressed in this manner were imputed as 5 when calculating totals. In the 5–15 years age group, event counts exclude Northern Ireland and Wales due to low numbers. Adjustments were included for: age group, sex, ethnicity, urban or rural classification, deprivation, and number of risk groups. Number of risk groups in Northern Ireland was based on number of different British National Formulary paragraphs prescribed. HR=hazard ratio.

Table 3: **Severe COVID-19 (COVID-19 hospitalisation or death) events in each age group by vaccine deficit**

Article

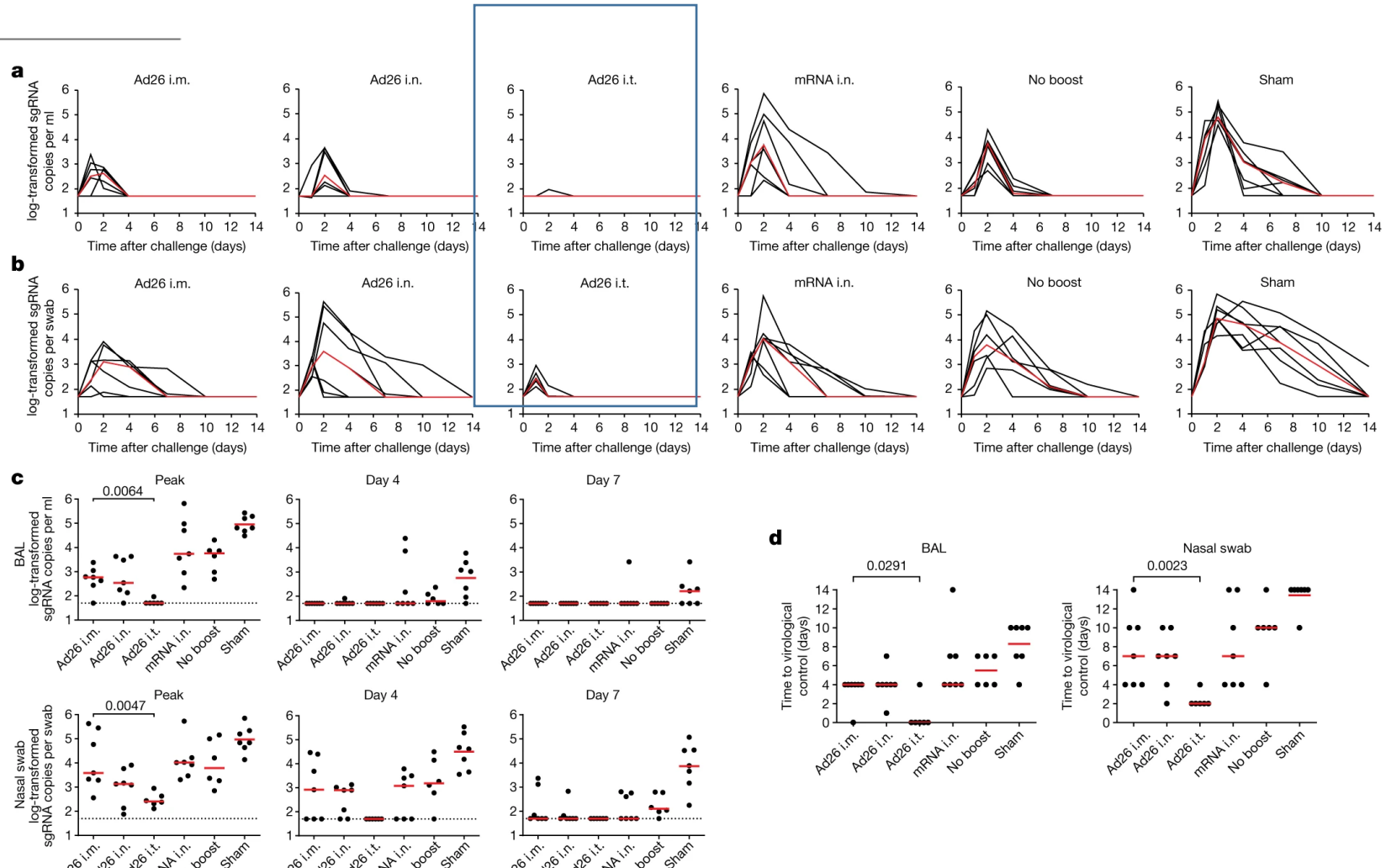
Mucosal boosting enhances vaccine protection against SARS-CoV-2 in macaques

https://doi.org/10.1038/s41586-023-06951-3
Received: 31 May 2023
Accepted: 7 December 2023
Published online: 14 December 2023
Open access
Check for updates

Katherine McMahan[1,8], Frank Wegmann[2,8], Malika Aid[1,8], Michaela Sciacca[1,8], Jinyan Liu[1,8], Nicole P. Hachmann[1,8], Jessica Miller[1,8], Catherine Jacob-Dolan[1,3,8], Olivia Powers[1,8], David Hope[1,8], Cindy Wu[1], Juliana Pereira[1], Tetyana Murdza[1], Camille R. Mazurek[1], Amelia Hoyt[1], Adrianus C. M. Boon[4], Meredith Davis-Gardner[5], Mehul S. Suthar[5], Amanda J. Martinot[6], Mona Boursiquot[7], Anthony Cook[7], Laurent Pessaint[7], Mark G. Lewis[7], Hanne Andersen[7], Jeroen Tolboom[2], Jan Serroyen[2], Laura Solforosi[2], Lea M. M. Costes[2], Roland C. Zahn[2,8] & Dan H. Barouch[1,3,8]✉

L'administration intra-trachéale d'un vaccin Adv26-SARS-CoV2 entraîne une réponse immunitaire mucosale avec des IgA spécifiques

Cette voie d'administration protège les souris immunisées
Contrairement à l'administration muqueuse de vaccin de type mRNA.



Article

Inhaled SARS-CoV-2 vaccine for single-dose dry powder aerosol immunization

https://doi.org/10.1038/s41586-023-06809-8

Received: 29 April 2022

Accepted: 31 October 2023

Published online: 13 December 2023

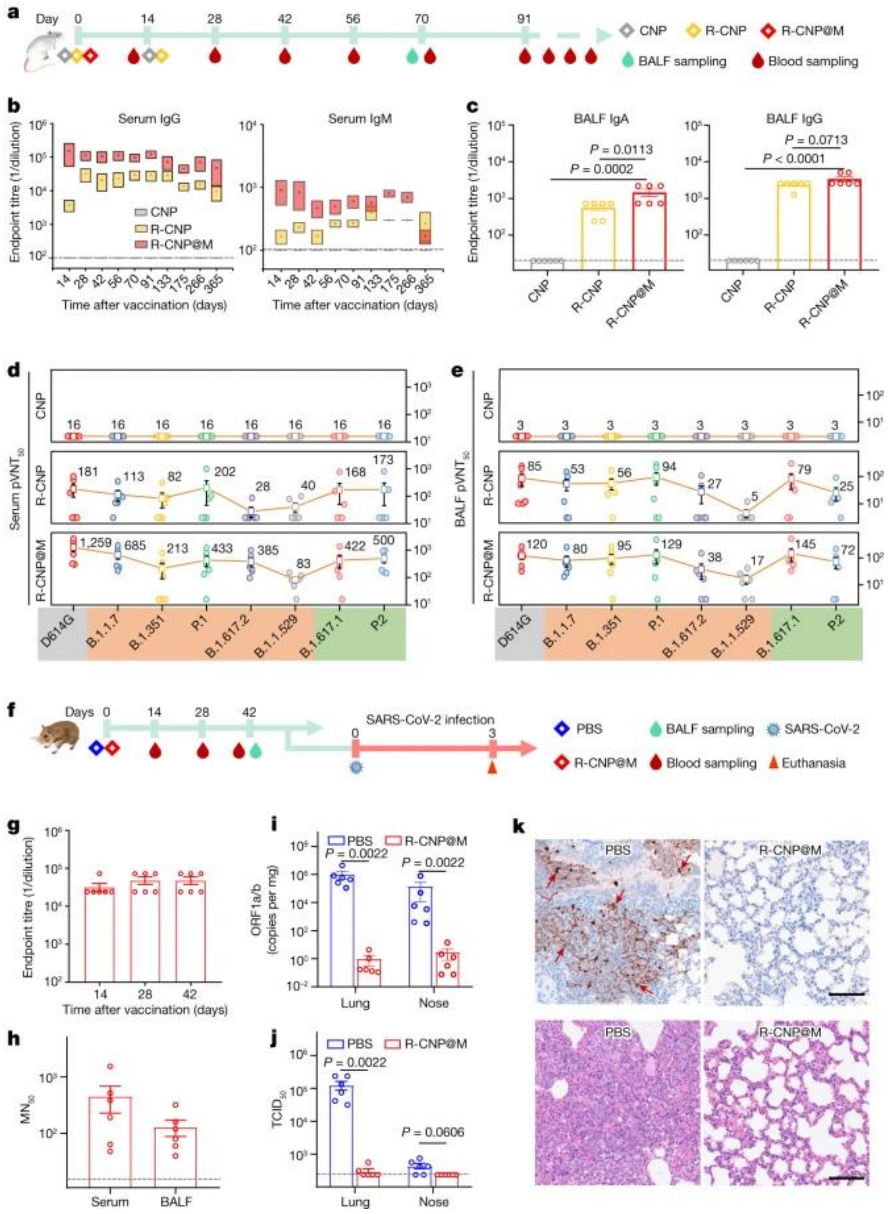
Tong Ye[1,2,13], Zhouguang Jiao[1,13], Xin Li[1,3,13], Zhanlong He[4,13], Yanyan Li[4], Fengmei Yang[4], Xin Zhao[4], Youchun Wang[5], Weijin Huang[5], Meng Qin[6], Yingmei Feng[7], Yefeng Qiu[8], Wenhui Yang[9], Lingfei Hu[9], Yaling Hu[10], Yu Zhai[10], Erqiang Wang[10], Di Yu[11,12], Shuang Wang[1], Hua Yue[1], Yishu Wang[1,2], Hengliang Wang[3]✉, Li Zhu[3]✉, Guanghui Ma[1,2]✉ & Wei Wei[1,2]✉

Conception d'un vaccin administré par voie inhalée

Nanoparticules avec une sous-unité de toxine cholérique B exprimant un antigène RBD du SARS-CoV-2

Modèles murins avec un challenge

Vaccin à la fois immunogène et protecteur

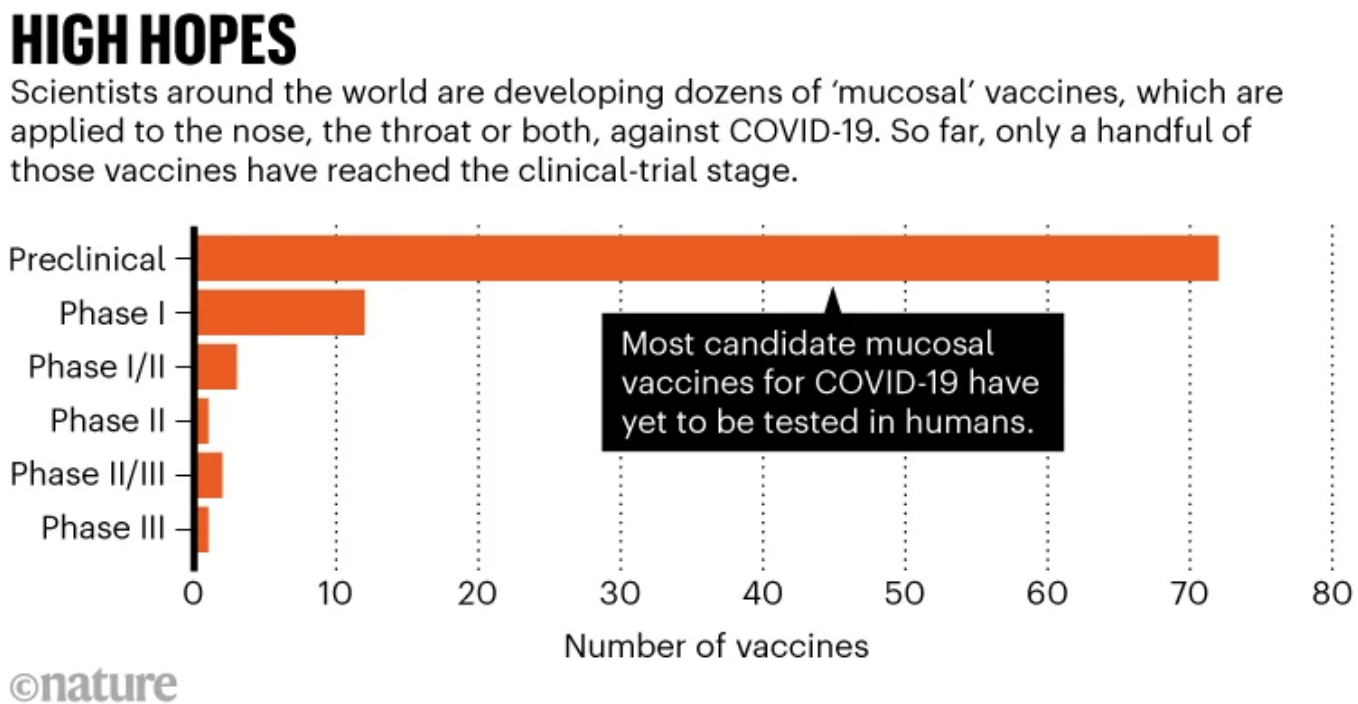


NEWS | 19 December 2023

Inhaled COVID vaccines stop infection in its tracks in monkey trials

New results hint at how to perfect 'mucosal' vaccines, which are delivered up the nose or down the throat.

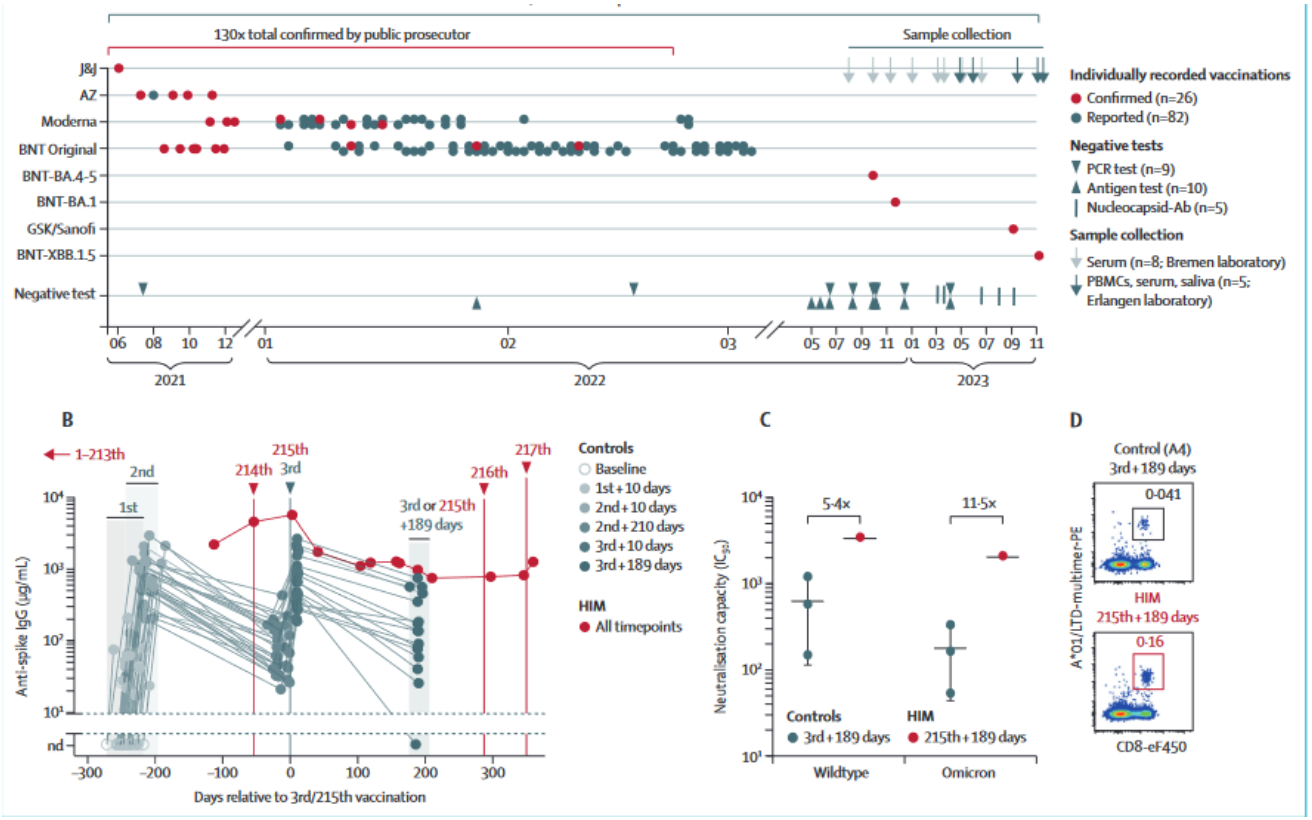
By Ewen Callaway



Adaptive immune responses are larger and functionally preserved in a hypervaccinated individual

*Katharina Kocher†, Carolin Moosmann†, Felix Drost, Christine Schülein, Pascal Irrgang, Philipp Steininger, Jahn Zhong, Johannes Träger, Bernd Spriewald, Christoph Bock, Dirk H Busch, Christian Bogdan, Benjamin Schubert, Thomas H Winkler, Matthias Tenbusch, Ev-Marie Schuster†, *Kilian Schober†*

kilian.schober@uk-erlangen.de



Un allemand se fait vacciner 217 fois, plus de capacité de neutralisation de son sérum que celui de patients contrôles, pas d'infection chez ce sujet

Autres

nature medicine

Article

https://doi.org/10.1038/s41591-023-02658-0

Durability of single-dose HPV vaccination in young Kenyan women: randomized controlled trial 3-year results

Received: 28 April 2023

Accepted: 20 October 2023

Published online: 4 December 2023

Check for updates

Ruanne V. Barnabas[1,2,3], Elizabeth R. Brown[4,5,6], Maricianah A. Onono[7], Elizabeth A. Bukusi[7,8,9], Betty Njoroge[10], Rachel L. Winer[11], Denise A. Galloway[12], Leeya F. Pinder[8,13], Deborah Donnell[4,8], Imelda N. Wakhungu[7], Charlene Biwott[10], Syovata Kimanthi[10], Kate B. Heller[1,8], Diane G. Kanjilal[1], Daniel Pacella[1], Susan Morrison[8], Elena A. Rechkina[8], Stephen L. Cherne[14], Torin T. Schaafsma[8], R. Scott McClelland[8,11,15,16], Connie Celum[8,11,15], Jared M. Baeten[8,15], Nelly R. Mugo[8,10] & the KEN SHE Study Team*

2275 Femmes âgées de 15 à 20 ans
Vaccin bivalent, nonavalent
Contrôle: vaccin contre le méningocoque

Table 3 | Participants experiencing adverse events (ITT)

	Randomized group			
	Nonavalent HPV	Bivalent HPV	Control	All
Enrolled, *n*	758	760	757	2,275
Any SAE, *n* (%)	59 (7.8%)	72 (9.5%)	70 (9.2%)	201 (8.8%)
Any pregnancy-related, *n* (%)	44 (5.8%)	45 (5.9%)	33 (4.4%)	122 (5.4%)
Any infection/inflammation, *n* (%)	13 (1.7%)	26 (3.4%)	32 (4.2%)	71 (3.1%)
Any injury, *n* (%)	0 (0%)	3 (0.4%)	4 (0.5%)	7 (0.3%)
Any mental health, *n* (%)	3 (0.4%)	4 (0.5%)	5 (0.7%)	12 (0.5%)

Participants may have more than one event across categories.

Table 2 | Incidence of persistent HPV and vaccine efficacy

a

	HPV 16/18									
	Nonavalent HPV		Bivalent HPV		Control		Nonavalent versus control		Bivalent versus control	
	Events/participants	Incidence of persistent HPV 16/18 per 100 woman-years (95% CI)	Events/participants	Incidence of persistent HPV 16/18 per 100 woman-years (95% CI)	Events/participants	Incidence of persistent HPV 16/18 per 100 woman-years (95% CI)	VE (95% CI)	*P* value	VE (95% CI)	*P* value
mITT Primary	1/496	0.08 (0–0.44)	2/489	0.16 (0.02–0.58)	72/473	6.70 (5.24–8.44)	98.8% (91.3–99.8%)	<0.0001	97.5% (90.0–99.4%)	<0.0001
mITT sensitivity	1/569	0.07 (0–0.39)	3/561	0.21 (0.04–0.62)	84/543	6.87 (5.48–8.51)	99.0% (92.5–99.9%)	<0.0001	96.8% (90.0–99.0%)	<0.0001
Extended sensitivity	0/429	0 (0–0.38)	0/404	0 (0–0.40)	44/380	5.52 (4.01–7.42)	100.0%* (NC)	<0.0001	100.0%* (NC)	<0.0001

The NEW ENGLAND JOURNAL of MEDICINE

ORIGINAL ARTICLE

Recombinant or Standard-Dose Influenza Vaccine in Adults under 65 Years of Age

Amber Hsiao, Ph.D., M.P.H., Arnold Yee, M.B.A., Bruce Fireman, M.A., John Hansen, M.P.H., Ned Lewis, M.P.H., and Nicola P. Klein, M.D., Ph.D.

Essai randomisé en cluster dans des centres médicaux de la Kaiser Permanente

Chaque semaine, chaque cluster reçoit soit le vaccin recombinant soit le vaccin à dose standard

Table 2. Primary and Secondary Outcomes and Relative Vaccine Effectiveness among Participants 50 to 64 Years of Age.*

Outcome	Recombinant Vaccine (N=279,400)	Standard-Dose Vaccine (N=395,852)	Unadjusted Rate Ratio	Adjusted Hazard Ratio (95% CI)†	Relative Vaccine Effectiveness (95% CI)	P Value‡
	no. of cases per 1000				%	
Primary outcome						
PCR-confirmed influenza	559 (2.00)	925 (2.34)	0.86	0.85 (0.76 to 0.94)	15.3 (5.9 to 23.8)	0.002
Secondary outcomes						
PCR-confirmed influenza A	522 (1.87)	862 (2.18)	0.86	0.84 (0.76 to 0.94)	15.7 (6.0 to 24.5)	0.002
PCR-confirmed influenza B	37 (0.13)	64 (0.16)	0.82	0.90 (0.60 to 1.34)	10.3 (–33.9 to 39.9)	0.59
Hospitalization for PCR-confirmed influenza	95 (0.34)	153 (0.39)	0.88	0.84 (0.65 to 1.09)	15.9 (–9.2 to 35.2)	0.19
Hospitalization for community-acquired pneumonia	106 (0.38)	183 (0.46)	0.82	0.83 (0.66 to 1.06)	16.7 (–5.6 to 34.4)	0.13
Hospitalization for cardiorespiratory event	631 (2.26)	890 (2.25)	1.004	0.98 (0.88 to 1.08)	2.4 (–8.1 to 11.9)	0.64

ORIGINAL ARTICLE

Potential for Maternally Administered Vaccine for Infant Group B Streptococcus

S.A. Madhi, A.S. Anderson, J. Absalon, D. Radley, R. Simon, B. Jongihlati, R. Strehlau, A.M. van Niekerk, A. Izu, N. Naidoo, G. Kwatra, Y. Ramsamy, M. Said, S. Jones, L. Jose, L. Fairlie, S.L. Barnabas, R. Newton, S. Munson, Z. Jefferies, D. Pavliakova, N.C. Silmon de Monerri, E. Gomme, J.L. Perez, D.A. Scott, W.C. Gruber, and K.U. Jansen

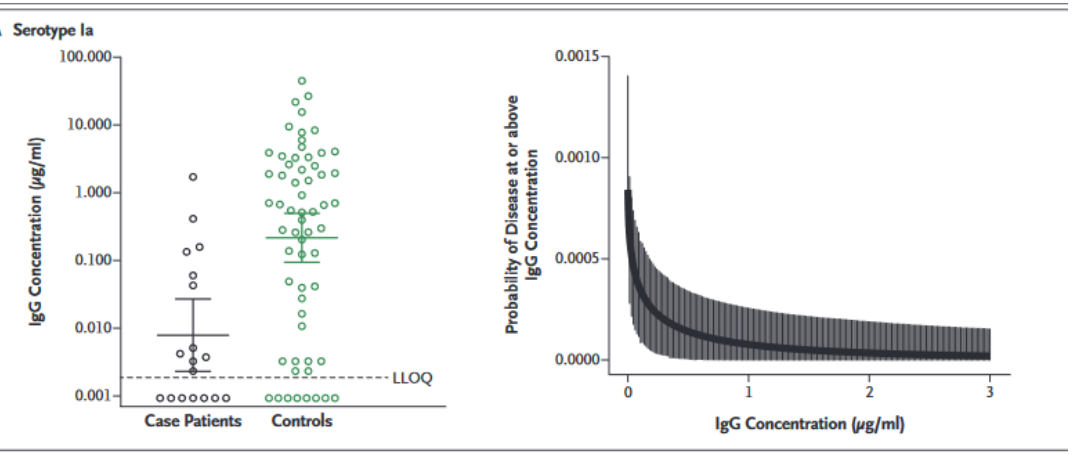


Table 2. Maternal and Infant Anti-CPS IgG Concentrations for Different GBS6 Formulations (Evaluable Immunogenicity Population).*

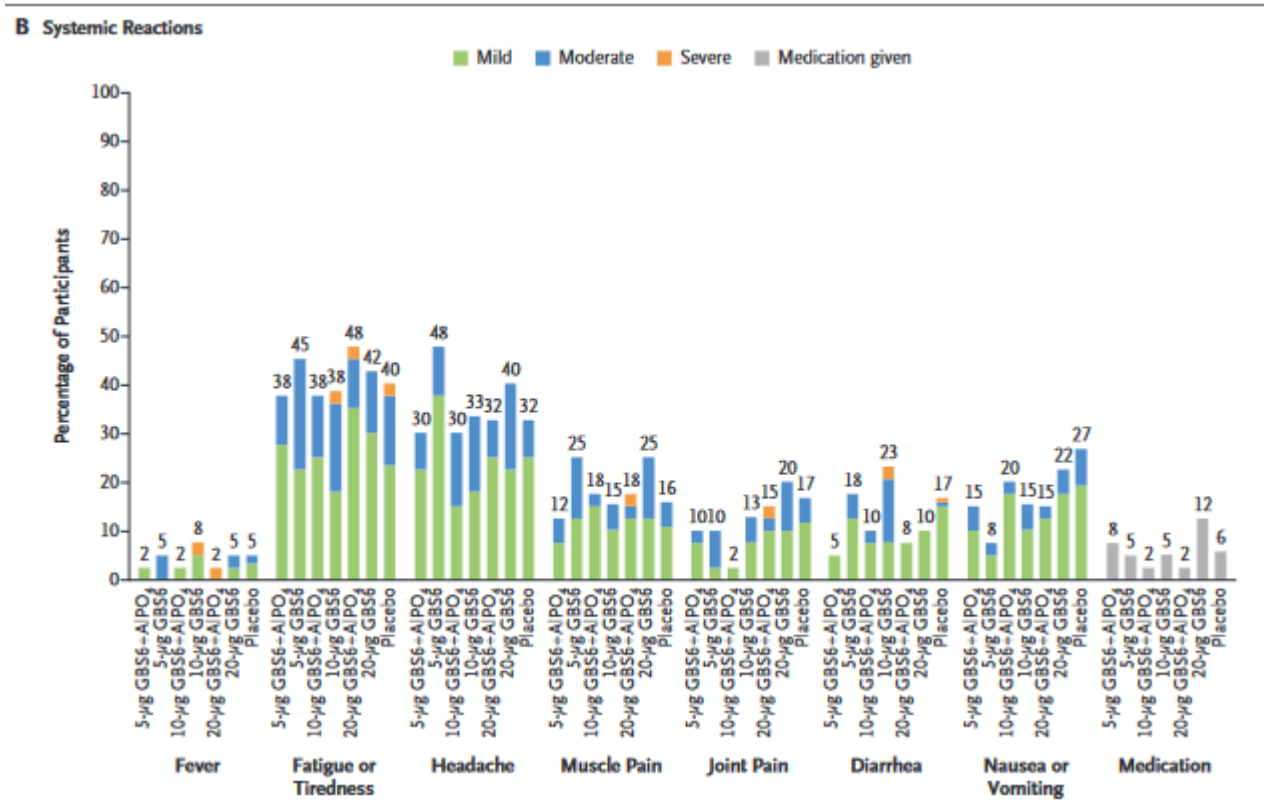
Variable	5-μg GBS6 with $AlPO_4$ (N = 34–37)	5-μg GBS6 (N = 29–36)	10-μg GBS6 with $AlPO_4$ (N = 29–37)	10-μg GBS6 (N = 29–34)	20-μg GBS6 with $AlPO_4$ (N = 35–38)	20-μg GBS6 (N = 34–40)	Placebo (N = 91–108)
Maternal GMC at delivery — μg/ml (95% CI)							
Serotype Ia	11.94 (5.57–25.61)	14.71 (6.16–35.11)	14.26 (6.57–30.96)	18.40 (8.18–41.35)	21.99 (8.81–54.88)	40.34 (23.87–68.18)	0.11 (0.06–0.19)
Serotype Ib	0.45 (0.16–1.33)	0.28 (0.10–0.76)	0.53 (0.18–1.56)	0.89 (0.34–2.31)	0.84 (0.39–1.84)	1.28 (0.56–2.94)	0.01 (0.01–0.02)
Serotype II	8.68 (4.46–16.87)	3.26 (1.60–6.65)	9.91 (5.41–18.15)	8.38 (4.81–14.61)	15.54 (7.82–30.91)	27.64 (15.63–48.88)	0.14 (0.10–0.20)
Serotype III	2.52 (0.99–6.38)	1.67 (0.64–4.34)	3.57 (1.49–8.56)	3.77 (1.75–8.13)	2.59 (1.16–5.81)	6.38 (2.83–14.38)	0.02 (0.01–0.03)
Serotype IV	1.69 (0.92–3.12)	0.54 (0.25–1.14)	1.41 (0.79–2.52)	1.29 (0.68–2.42)	1.82 (1.70–3.10)	2.48 (1.49–4.15)	0.01 (0.10–0.02)
Serotype V	0.19 (0.10–0.36)	0.24 (0.09–0.66)	0.68 (0.31–1.52)	1.40 (0.54–3.59)	0.85 (0.41–1.76)	0.87 (0.38–1.98)	0.02 (0.01–0.02)
Infant GMC at birth — μg/ml (95% CI)							
Serotype Ia	6.56 (2.61–16.51)	15.06 (7.26–31.28)	11.89 (5.46–25.85)	12.30 (4.88–31.04)	8.26 (2.84–24.00)	29.56 (16.96–51.51)	0.08 (0.04–0.14)
Serotype Ib	0.26 (0.08–0.84)	0.27 (0.08–0.90)	0.32 (0.09–1.18)	0.45 (0.15–1.39)	0.32 (0.14–0.75)	0.71 (0.27–1.82)	0.01 (0.01–0.02)
Serotype II	6.61 (3.62–12.06)	4.37 (2.40–7.94)	7.44 (3.81–14.53)	6.95 (3.19–15.12)	7.95 (3.47–18.20)	20.77 (10.66–40.45)	0.10 (0.07–0.14)
Serotype III	1.21 (0.45–3.23)	1.41 (0.52–3.86)	2.04 (0.82–5.10)	2.26 (0.84–6.04)	1.01 (0.36–2.83)	3.15 (1.29–7.69)	0.02 (0.01–0.02)
Serotype IV	1.42 (0.74–2.74)	0.81 (0.35–1.91)	1.07 (0.64–1.82)	0.68 (0.33–1.37)	1.02 (0.55–1.90)	2.09 (1.18–3.72)	0.01 (0.01–0.01)
Serotype V	0.11 (0.05–0.24)	0.20 (0.06–0.62)	0.42 (0.16–1.09)	0.78 (0.26–2.30)	0.36 (0.15–0.87)	0.58 (0.24–1.43)	0.01 (0.01–0.02)

Détermination de corrélats de protection dans une cohorte de nouveau-nés exposés
Mesure de l'immunogénicité maternelle et du transfert passif des Ac

ORIGINAL ARTICLE

Potential for Maternally Administered Vaccine for Infant Group B Streptococcus

S.A. Madhi, A.S. Anderson, J. Absalon, D. Radley, R. Simon, B. Jongihlati, R. Strehlau, A.M. van Niekerk, A. Izu, N. Naidoo, G. Kwatra, Y. Ramsamy, M. Said, S. Jones, L. Jose, L. Fairlie, S.L. Barnabas, R. Newton, S. Munson, Z. Jefferies, D. Pavliakova, N.C. Silmon de Monerri, E. Gomme, J.L. Perez, D.A. Scott, W.C. Gruber, and K.U. Jansen



Vaccine xxx (xxxx) xxx

Contents lists available at ScienceDirect

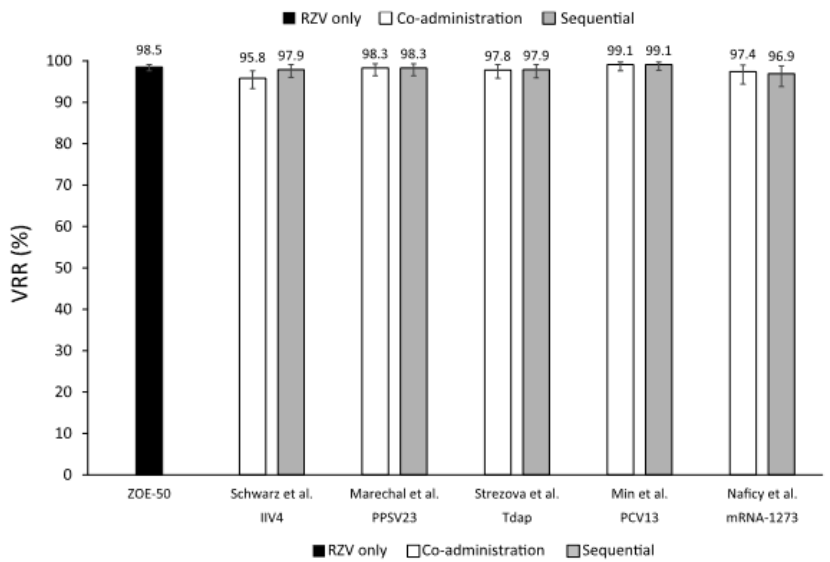
Vaccine

journal homepage: www.elsevier.com/locate/vaccine

Co-administration of the adjuvanted recombinant zoster vaccine with other adult vaccines: An overview

S. Omar Ali [a,*], Christophe Dessart [b], Raunak Parikh [b]

[a] GSK, 14200 Shady Grove Rd, Rockville, MD, USA
[b] GSK, Avenue Fleming 20, 1300 Wavre, Belgium



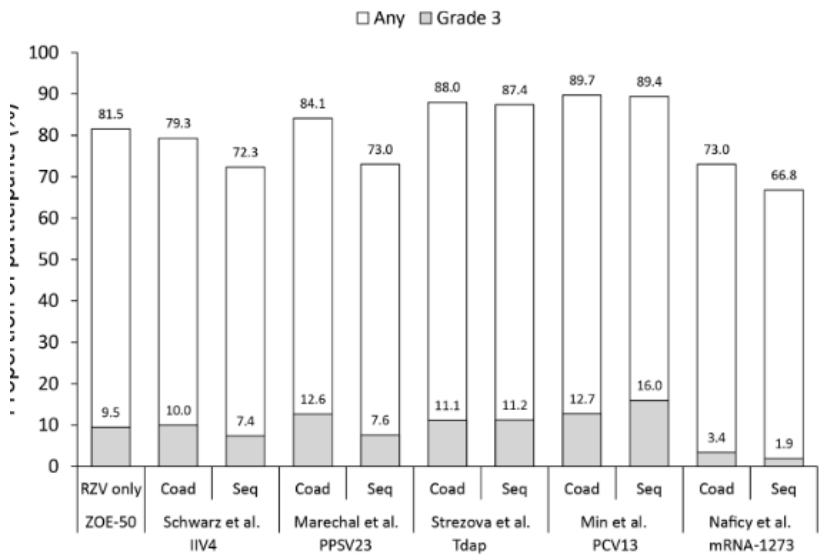
HAS
HAUTE AUTORITÉ DE SANTÉ

COMMUNIQUÉ DE PRESSE

La HAS actualise la stratégie de vaccination contre le zona

7 mars 2024

Causé par la réactivation du virus varicelle-zona, le zona est une affection virale de la peau et des muqueuses qui touche particulièrement les personnes âgées. En France, le Haut conseil de la santé publique a recommandé en 2013 l'administration du vaccin Zostavax aux adultes de 65 à 74 ans révolus. La HAS a été saisie par la Direction générale de la santé afin d'actualiser cette stratégie, notamment en évaluant les données concernant un autre vaccin, Shingrix. À l'issue de son analyse, la HAS recommande la vaccination des personnes immunodéprimées de 18 ans et plus et de tous les adultes de 65 ans et plus avec le vaccin Shingrix.



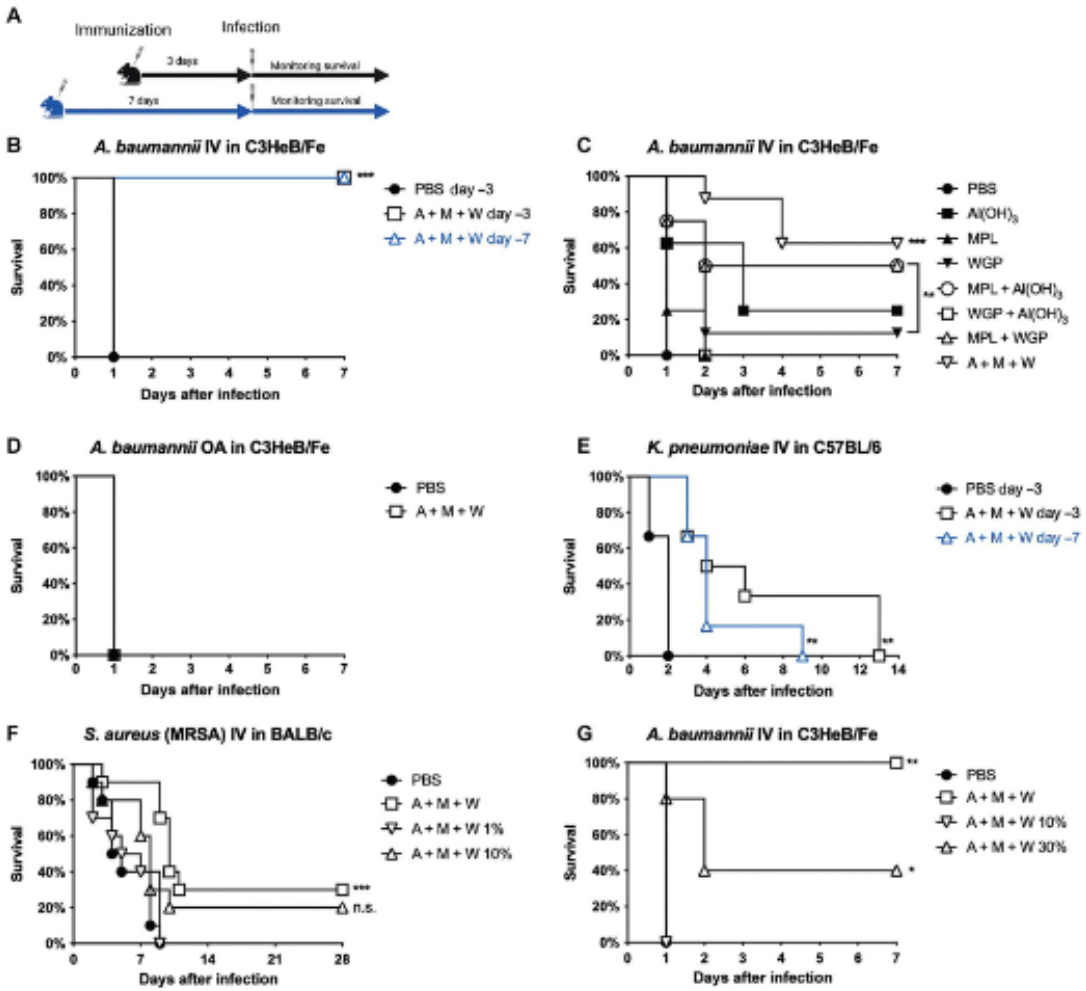
(a)

SCIENCE TRANSLATIONAL MEDICINE | RESEARCH ARTICLE

VACCINES

A protein-free vaccine stimulates innate immunity and protects against nosocomial pathogens

Jun Yan[1]*, Travis B. Nielsen[1,2], Peggy Lu[1], Yuli Talyansky[1], Matt Starve[1], Hernan Reza[1], Boris Novakovic[3], Mihai G. Netea[4,5], Ashley E. Keller[6], Troy Warren[6], Antonio DiGiandomenico[6], Bret R. Sellman[6], Brian M. Luna[1], Brad Spellberg[7]



A protein-free vaccine composed of aluminum hy-droxide, monophosphoryl lipidA, and fungal mannan

Effet protecteur dans des modèles murins de bactériémies à SARM, *A.baumanii, K.pneumoniae*

Efficacité 24 heures après l'administration

Hésitation vaccinale

PNAS BRIEF REPORT | SOCIAL SCIENCES OPEN ACCESS

US state vaccine mandates did not influence COVID-19 vaccination rates but reduced uptake of COVID-19 boosters and flu vaccines compared to bans on vaccine restrictions

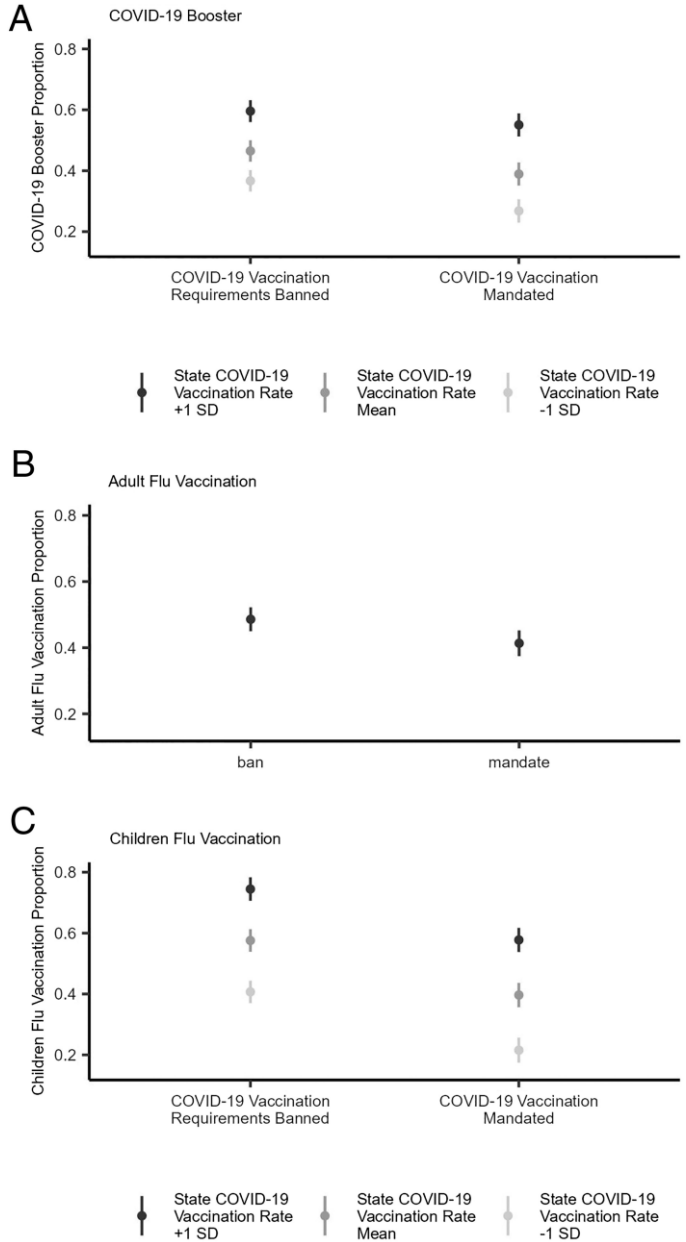
Stephen A. Rains[a,1] and Adam S. Richards[b]

Edited by Mary Waters, Harvard University, Cambridge, MA; received August 9, 2023; accepted December 11, 2023

Table. 1. Change in new COVID-19 vaccination rates weekly based on COVID-19 mandate imposition and baseline attitudes

	New weekly vaccinations per 100k			New weekly vaccinations per 100k			New weekly vaccinations per 100k		
	b	95% CI	*p*	*b*	95% CI	*p*	*b*	95% CI	*p*
Intercept	1567.38	1314.87 to 1819.90	**<0.001**	1150.50	807.62 to 1493.38	**<0.001**	1105.48	642.19 to 1568.76	**<0.001**
Proportion of state vaccinated	−1667.37	−2100.01 to −1234.72	**<0.001**	−1802.00	−2310.83 to − 1293.18	**<0.001**	−1802.89	−2312.56 to −1293.22	**<0.001**
Baseline attitude toward vaccine mandate				882.20	304.17 to 1460.22	**0.003**	959.91	170.46 to 1749.36	**0.017**
Mandate (0 = before; 1 = after)				−42.27	−105.40 to 20.86	0.189	47.32	−574.70 to 669.35	0.881
Baseline attitude × mandate							−153.05	−1210.10 to 904.00	0.776
Observations		297			297			297	
R^2/R^2 adjusted		0.163/0.160			0.198/0.190			0.198/0.187	

Notes. The outcome variable was new weekly COVID-19 vaccinations per 100k residents. 95% CI = 95% confidence interval. Bold values indicate $p < .05$.



Merci de votre attention