

PERSONAL INFORMATION

Birgitte Giersing

WORK EXPERIENCE

- January 2020- Present **Team Lead, vaccine prioritisation & platforms**
World Health Organisation (Switzerland)
Manage an advisory committee to dept of immunization, Vaccine & Biologicals on vaccine product development
focal point for several vaccines in development including TB vaccines
evaluat novel vaccine production platforms and the use of
monoclonal antibodies as a tool for prevention of infectious diseases
developed a strategy to determine how WHO can accelerate the development of
vaccines for low- and middle- income countries (LMICs), where market forces are unfavourable.
- November 2015-December 2019 **Technical officer IVB**
World Health Organisation (Switzerland)
Development of target product profiles and technical roadmaps for vaccines
managed the product development activities for various pipeline vaccines
- June 2013-November 2014 **Global project manager, Norovirus**
Takeda Vaccines (Switzerland)
Team lead for development of Norovirus vaccine
- December 2007-June 2013 **Senior Director**
Emergent Biosolutions (United Kingdom)
Team lead and project lead for various vaccine development projects/programmes
- December 2003-November 2007 **Senior programme officer**
PATH (United States)
Malaria vaccine development
- December 2001-December 2003 **post doctoral scientist**
National Institutes of Health (United States)
Malaria vaccine development

EDUCATION AND TRAINING

- September 1997-November 2000 **PhD Biochemistry**
University of Kent, Canterbury (United Kingdom)
radiochemistry, protein purification, molecular biology, clinical trials
- September 1995-October 1996 **Masters of research**
University of Kent, Canterbury (United Kingdom)
protein purification, molecular biology,
- September 1991-July 1995 **B.Sc (Hons)**
University of Kent, Canterbury (United Kingdom)
various

ADDITIONAL INFORMATION

Expertise
Publications

1: Zuber PLF, Gruber M, Kaslow DC, Chen RT, Giersing BK, Friede MH. Evolving pharmacovigilance requirements with novel vaccines and vaccine components. *BMJ Glob Health*. 2021 May;6(Suppl 2):e003403. doi: 10.1136/bmjgh-2020-003403. PMID: 34011500; PMCID:

PMC8137242.

2: Botwright S, Giersing BK, Meltzer MI, Kahn AL, Jit M, Baltussen R, El Omeiri N, Biey JN, Moore KL, Thokala P, Mwenda JM, Bertram M, Hutubessy RCW. The CAPACITI Decision-Support Tool for National Immunization Programs. *Value Health*. 2021 Aug;24(8):1150-1157. doi: 10.1016/j.jval.2021.04.1273. Epub 2021 Jun 18. PMID: 34372981.

3: Kristensen D, Giersing B, Hickling J, Kazi F, Scarna T, Kahn AL, Hsu V, Gandrup-Marino K, Menozzi-Arnaud M. A global collaboration to advance vaccine product innovations - The Vaccine Innovation Prioritisation Strategy. *Vaccine*. 2021 Dec 3;39(49):7191-7194. doi: 10.1016/j.vaccine.2021.05.102. Epub 2021 Jun 24. PMID: 34175125; PMCID: PMC8222942.

4: Khalil I, Walker R, Porter CK, Muhib F, Chilengi R, Cravioto A, Guerrant R, Svennerholm AM, Qadri F, Baqar S, Kosek M, Kang G, Lanata C, Armah G, Wierzbza T, Hasso-Agopsowicz M, Giersing B, Louis Bourgeois A. Enterotoxigenic *Escherichia coli* (ETEC) vaccines: Priority activities to enable product development, licensure, and global access. *Vaccine*. 2021 Jul 13;39(31):4266-4277. doi: 10.1016/j.vaccine.2021.04.018. Epub 2021 May 6. PMID: 33965254; PMCID: PMC8273896.

5: Mvundura M, Frivold C, Janik Osborne A, Soni P, Robertson J, Kumar S, Anena J, Gueye A, Menozzi-Arnaud M, Giersing B, Kahn AL, Scarna T, Kristensen D. Vaccine innovation prioritisation strategy: Findings from three country- stakeholder consultations on vaccine product innovations. *Vaccine*. 2021 Dec 3;39(49):7195-7207. doi: 10.1016/j.vaccine.2021.08.024. Epub 2021 Aug 16. PMID: 34412922; PMCID: PMC8657797.

6: Rattanavipapong W, Kapoor R, Teerawattananon Y, Luttjeboer J, Botwright S, Archer RA, Giersing B, Hutubessy RCW. Comparing 3 Approaches for Making Vaccine Adoption Decisions in Thailand. *Int J Health Policy Manag*. 2020 Oct 1;9(10):439-447. doi: 10.15171/ijhpm.2020.01. PMID: 32610741; PMCID: PMC7719214.

7: Peyraud N, Zehrung D, Jarrahian C, Frivold C, Orubu T, Giersing B. Potential use of microarray patches for vaccine delivery in low- and middle- income countries. *Vaccine*. 2019 Jul 26;37(32):4427-4434. doi: 10.1016/j.vaccine.2019.03.035. Epub 2019 Jun 28. PMID: 31262587.

8: Gottlieb SL, Jerse AE, Delany-Moretlwe S, Deal C, Giersing BK. Advancing vaccine development for gonorrhoea and the Global STI Vaccine Roadmap. *Sex Health*. 2019 Sep;16(5):426-432. doi: 10.1071/SH19060. PMID: 31476278.

9: Butkeviciute E, Prudden HJ, Jit M, Smith PG, Kang G, Riddle MS, Lopman BA, Pitzer VE, Lanata CF, Platts-Mills JA, Breiman RF, Giersing BK, Hasso-Agopsowicz M. Global diarrhoea-associated mortality estimates and models in children: Recommendations for dataset and study selection. *Vaccine*. 2021 Jul 22;39(32):4391-4398. doi: 10.1016/j.vaccine.2021.05.086. Epub 2021 Jun 13. PMID: 34134905.

10: Zehrung D, Jarrahian C, Giersing B, Kristensen D. Exploring new packaging and delivery options for the immunization supply chain. *Vaccine*. 2017 Apr 19;35(17):2265-2271. doi: 10.1016/j.vaccine.2016.11.095. PMID: 28364941.

Case fatality risk of diarrhoeal pathogens: a systematic review and meta-analysis.

Asare EO, Hergott D, Seiler J, Morgan B, Archer H, Wiyeh AB, Guo B, Driver M, Giersing B, Hasso-Agopsowicz M, Lingappa J, Lopman BA, Pitzer VE.

Int J Epidemiol. 2022 May 17;dyac098. doi: 10.1093/ije/dyac098. Online ahead of print. PMID: 35578827

Accelerating the Development of Measles and Rubella Microarray Patches to Eliminate Measles and Rubella: Recent Progress, Remaining Challenges.

Hasso-Agopsowicz M, Crowcroft N, Biellik R, Gregory CJ, Menozzi-Arnaud M, Amorij JP, Gilbert PA, Earle K, Frivold C, Jarrahian C, Mvundura M, Mistilis JJ, Durrheim DN, Giersing B. *Front Public Health*. 2022 Mar 2;10:809675. doi: 10.3389/fpubh.2022.809675. eCollection 2022. PMID: 35309224 Free PMC article. Review.

Challenges of vaccine presentation and delivery: How can we design vaccines to have optimal programmatic impact?

Giersing BK, Kahn AL, Jarrahian C, Mvundura M, Rodriguez C, Okayasu H, Zehrung D.

Vaccine. 2017 Dec 14;35(49 Pt A):6793-6797. doi: 10.1016/j.vaccine.2017.04.063. Epub 2017 May 29.

PMID: 28566254

End-user acceptability study of the nanopatch; a microarray patch (MAP) for child immunization in low and middle-income countries.

Guillemet E, Alfa DA, Phuong Mai LT, Subedi M, Demolis R, Giersing B, Jaillard P.

Vaccine. 2019 Jul 26;37(32):4435-4443. doi: 10.1016/j.vaccine.2019.02.079. Epub 2019 Mar 16. PMID: 30890383

Update on the clinical development of candidate malaria vaccines.

Ballou WR, Arevalo-Herrera M, Carucci D, Richie TL, Corradin G, Diggs C, Druilhe P, Giersing BK, Saul A, Heppner DG, Kester KE, Lanar DE, Lyon J, Hill AV, Pan W, Cohen JD.

Am J Trop Med Hyg. 2004 Aug;71(2 Suppl):239-47.

PMID: 15331843 Review.

Report from the World Health Organization's third Product Development for Vaccines Advisory Committee (PDVAC) meeting, Geneva, 8-10th June 2016.

Giersing BK, Vekemans J, Nava S, Kaslow DC, Moorthy V; WHO Product Development for Vaccines Advisory Committee.

Vaccine. 2019 Nov 28;37(50):7315-7327. doi: 10.1016/j.vaccine.2016.10.090. Epub 2017 Mar 3.

PMID: 28262332 Free PMC article.

Pivotal Shigella Vaccine Efficacy Trials-Study Design Considerations from a Shigella Vaccine Trial Design Working Group.

Pavlinac PB, Rogawski McQuade ET, Platts-Mills JA, Kotloff KL, Deal C, Giersing BK, Isbrucker RA, Kang G, Ma LF, MacLennan CA, Patriarca P, Steele D, Vannice KS.

Vaccines (Basel). 2022 Mar 22;10(4):489. doi: 10.3390/vaccines10040489.

PMID: 35455238 Free PMC article.

Building the concept for WHO Evidence Considerations for Vaccine Policy (ECVP): Tuberculosis vaccines intended for adults and adolescents as a test case.

Kochhar S, Barreira D, Beattie P, Cavaleri M, Cravioto A, Frick MW, Ginsberg AM, Hudson I, Kaslow DC, Kurtz S, Lienhardt C, Madhi SA, Morgan C, Momeni Y, Patel D, Rees H, Rogalski-Salter T, Schmidt A, Semete-Makokotela B, Voss G, White RG, Zignol M, Giersing B.

Vaccine. 2022 Mar 15;40(12):1681-1690. doi: 10.1016/j.vaccine.2021.10.062. Epub 2022 Feb 11.

PMID: 35164990 Free PMC article.

WHO consultation on Respiratory Syncytial Virus Vaccine Development Report from a World Health Organization Meeting held on 23-24 March 2015.

Modjarrad K, Giersing B, Kaslow DC, Smith PG, Moorthy VS; WHO RSV Vaccine Consultation Expert Group.

Vaccine. 2016 Jan 4;34(2):190-197. doi: 10.1016/j.vaccine.2015.05.093. Epub 2015 Jun 20.

PMID: 26100926 Free PMC article.

Potency assay design for adjuvanted recombinant proteins as malaria vaccines.

Giersing BK, Dubovsky F, Saul A, Denamur F, Minor P, Meade B.

Vaccine. 2006 May 15;24(20):4264-70. doi: 10.1016/j.vaccine.2006.01.005.

PMID: 16767804

: Malkin E, Hu J, Li Z, Chen Z, Bi X, Reed Z, Dubovsky F, Liu J, Wang Q, Pan X, Chen T, Giersing B, Xu Y, Kang X, Gu J, Shen Q, Tucker K, Tierney E, Pan W, Long C, Cao Z. A phase 1 trial of PfCP2.9: an AMA1/MSP1 chimeric recombinant protein vaccine for Plasmodium falciparum malaria. Vaccine. 2008 Dec 9;26(52):6864-73. doi: 10.1016/j.vaccine.2008.09.081. Epub 2008 Oct 16. PMID: 18930094.

2: Mullen GE, Giersing BK, Ajose-Popoola O, Davis HL, Kothe C, Zhou H, Aebig J, Dobrescu G, Saul A, Long CA. Enhancement of functional antibody responses to AMA1-C1/Alhydrogel, a Plasmodium falciparum malaria vaccine, with CpG oligodeoxynucleotide. Vaccine. 2006 Mar 24;24(14):2497-505. doi: 10.1016/j.vaccine.2005.12.034. Epub 2006 Jan 4. PMID: 16434128.

3: Miura K, Zhou H, Muratova OV, Orcutt AC, Giersing B, Miller LH, Long CA. In immunization with Plasmodium falciparum apical membrane antigen 1, the specificity of antibodies depends on the species immunized. Infect Immun. 2007 Dec;75(12):5827-36. doi: 10.1128/IAI.00593-07. Epub 2007 Oct 8. PMID: 17923516; PMCID: PMC2168362.

4: Malkin EM, Diemert DJ, McArthur JH, Perreault JR, Miles AP, Giersing BK, Mullen GE, Orcutt A, Muratova O, Awkal M, Zhou H, Wang J, Stowers A, Long CA, Mahanty S, Miller LH, Saul A, Durbin AP. Phase 1 clinical trial of apical membrane antigen 1: an asexual blood-stage vaccine for Plasmodium falciparum malaria. Infect Immun. 2005 Jun;73(6):3677-85. doi: 10.1128/IAI.73.6.3677-3685.2005. PMID: 15908397; PMCID: PMC1111886.

5: Miles AP, McClellan HA, Rausch KM, Zhu D, Whitmore MD, Singh S, Martin LB, Wu Y, Giersing BK, Stowers AW, Long CA, Saul A. Montanide ISA 720 vaccines: quality control of emulsions,

stability of formulated antigens, and comparative immunogenicity of vaccine formulations. *Vaccine*. 2005 Mar 31;23(19):2530-9. doi: 10.1016/j.vaccine.2004.08.049. PMID: 15752840.

6: Giersing BK, Rae MT, CarballidoBrea M, Williamson RA, Blower PJ. Synthesis and characterization of ¹¹¹In-DTPA-N-TIMP-2: a radiopharmaceutical for imaging matrix metalloproteinase expression. *Bioconjug Chem*. 2001 Nov-Dec;12(6):964-71. doi: 10.1021/bc010028f. PMID: 11716687.

7: Cummings JF, Spring MD, Schwenk RJ, Ockenhouse CF, Kester KE, Polhemus ME, Walsh DS, Yoon IK, Prospero C, Juompan LY, Lanar DE, Krzych U, Hall BT, Ware LA, Stewart VA, Williams J, Dowler M, Nielsen RK, Hillier CJ, Giersing BK, Dubovsky F, Malkin E, Tucker K, Dubois MC, Cohen JD, Ballou WR, Heppner DG Jr. Recombinant Liver Stage Antigen-1 (LSA-1) formulated with AS01 or AS02 is safe, elicits high titer antibody and induces IFN-gamma/IL-2 CD4+ T cells but does not protect against experimental *Plasmodium falciparum* infection. *Vaccine*. 2010 Jul 12;28(31):5135-44. doi: 10.1016/j.vaccine.2009.08.046. Epub 2009 Sep 6. PMID: 19737527.

8: Giersing B, Miura K, Shimp R, Wang J, Zhou H, Orcutt A, Stowers A, Saul A, Miller LH, Long C, Singh S. posttranslational modification of recombinant *Plasmodium falciparum* apical membrane antigen 1: impact on functional immune responses to a malaria vaccine candidate. *Infect Immun*. 2005 Jul;73(7):3963-70. doi: 10.1128/IAI.73.7.3963-3970.2005. PMID: 15972483; PMCID: PMC1168543.

9: Langermans JA, Hensmann M, van Gijlswijk M, Zhang D, Pan W, Giersing BK, Locke E, Dubovsk F, Wittes J, Thomas AW. Preclinical evaluation of a chimeric malaria vaccine candidate in Montanide ISA 720: immunogenicity and safety in rhesus macaques. *Hum Vaccin*. 2006 Sep-Oct;2(5):222-6. doi: 10.4161/hv.2.5.3276. PMID: 17035731.

10: Giersing BK, Modjarrad K, Kaslow DC, Moorthy VS; WHO Product Development for Vaccines Advisory Committee; WHO Product Development for Vaccines Product Development Advisory Committee. Report from the World Health Organization's Product Development for Vaccines Advisory Committee (PDVAC) meeting, Geneva, 7-9th Sep 2015. *Vaccine*. 2016 Jun 3;34(26):2865-2869. doi: 10.1016/j.vaccine.2016.02.078. Epub 2016 Mar 15. PMID: 26993336; PMCID: PMC7130468.

1: Kulasegaram R, Giersing B, Page CJ, Blower PJ, Williamson RA, Peters BS, O'Doherty MJ. In vivo evaluation of ¹¹¹In-DTPA-N-TIMP-2 in Kaposi sarcoma associated with HIV infection. *Eur J Nucl Med*. 2001 Jun;28(6):756-61. PMID: 11440037.

2: Kulasegaram R, Giersing B, Page C, Blower P, Williamson R, Peters B, O'Doherty M. In vivo evaluation of (¹¹¹In)-DTPA-N-TIMP-2 in Kaposi sarcoma associated with HIV infection. *Eur J Nucl Med*. 2001 Jun;28(6):756-61. doi: 10.1007/s002590100522. PMID: 24777542.

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