

Name	Menno C. van Zelm
Born	24-06-1979
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Scientific career

08/2002 – 06/2007	PhD in Immunology, Erasmus MC, Rotterdam, the Netherlands
10/2005 – 09/2006	Visiting Scholar, University of California San Diego, CA, USA
07/2007 – 01/2008	Postdoctoral fellow, University of California San Diego, CA, USA
01/2008 – 10/2010	Postdoctoral fellow, Erasmus MC, Rotterdam, NL
10/2010 – 08/2013	Assistant Professor, Dept. Immunology, Erasmus MC, Rotterdam, NL
08/2013 – 07/2015	Associate Professor, Dept. Immunology, Erasmus MC, Rotterdam, NL
Since 08/2015	Associate Professor, Dept. Immunology and Pathology, Monash University, Melbourne, VIC, Australia

Menno van Zelm completed his PhD and postdoctoral studies at the Erasmus MC, where he identified the first antibody-deficient patients with CD19 and CD81 gene defects, and developed the KREC assay to study homeostatic and antigen-induced B cell proliferation. In collaborative studies, he worked 18 months in the laboratory of Kees Murre at the University of California San Diego (UCSD) to elucidate the structural organization of the Igh locus in progenitor B cells.

In 2009, Dr. Van Zelm became group leader in the Erasmus MC, since 2013 as Associate Professor, and continued his work on critical checkpoints in B-cell differentiation and B-cell memory. In 2015, Menno van Zelm relocated to Monash University at the Alfred Precinct, where he continues to work on the mechanisms that shape of adaptive immunity by persistent viruses and intestinal microbiota, and translation into antibody deficiencies, chronic inflammatory disease and IgE-mediated allergies.

Dr. van Zelm has received multiple personal grants since 2009, including a Veni Fellowship from NWO. In 2010, he received the Heineken Young Scientists Award from the Royal Netherlands Academy of Sciences (KNAW). He is a council member of HCDM, the organisation that assigns new CD nomenclature and currently evaluates expression patterns of previously assigned CD markers in the CDMaps project.

Research Support

2009-2015	EUR-Fellowship (Erasmus University Rotterdam)
2011-2014	NWO Veni grant (Innovational Research Incentives Scheme)
2011-2015	Erasmus MC Fellowship
2012-2016	ACTA open competition (€230,000)
2012-2016	Sophia Children's Hospital fund (€256,000)
2015-2018	Monash University Establishment Grant

Awards and Honours

2010	Heineken Young Scientists Award for Medicine
2011	Selected participant 'Avond van Wetenschap en Maatschappij'
2011	Selected participant 61th Meeting of Nobel Laureates in Lindau

Professional Memberships/Committees:

2002 – present	Member, NVvI (Dutch Society of Immunology)
2002 – present	Member, ESID (European Society for Immunodeficiencies)
2010 – present	Associate Editor "Frontiers in Immunology"
2010 – present	Reviewer for J Allergy Clin Immunol, Gastroenterology, AIDS, Immunol Cell Biol, Molecular Immunology, Human Immunology, Vaccine, Blood
2011 – present	Member, VVViO (NWO Innovational Research Incentive Researchers)
2011 – present	Member, Int'l Council of Human Cell Differentiation Molecules (HCDM/HLDA)
2011 – present	Member, EuroFlow Consortium
2013 – 2015	Member, Young Erasmus, Erasmus University Rotterdam
2014 – present	Member, ASI (Australasian Society for Immunology)
2015 – present	Academic Editor PLoS One

15 selected publications

1. M.B. Rother, R.J. Palstra, S. Jhunjhunwala, K.A.M. van Kester, W.F.J. van IJcken, R.W. Hendriks, J.J.M. van Dongen, C. Murre and **M.C. van Zelm** (2015) Nuclear positioning rather than contraction controls ordered rearrangements of immunoglobulin loci. *Nucleic Acids Res.* pii: gkv928 [Epub].
2. D. van den Heuvel, M.A.E. Jansen, W.A. Dik, H. Bouallouch-Charif, D. Zhao, K.A.M. van Kester, M.A.W. Smits-te Nijenhuis, M.J. Koliijn-Couwenberg, V.W.V. Jaddoe, R. Arens, J.J.M. van Dongen, H.A. Moll, **M.C. van Zelm** (2015) CMV- and EBV-induced T-cell expansions in young children do not impair naive T-cell populations or vaccination responses. The Generation R Study. *J Infect Disease.* pii: jiv369. [Epub ahead of print]
3. R.H.J. Verstegen, G.J. Driessen, S.J.W. Bartol, C.J.M. van Noesel, L. Boon, M. van der Burg, J.J.M. van Dongen, E. de Vries, **M.C. van Zelm** (2014) Defective B-cell memory in patients with Down syndrome *J Allergy Clin Immunol.* 134(6):1346-1353.e9.
4. M.A. Berkowska, J.J. Heeringa, E. Hajdarbegovic, M. van der Burg, H.B. Thio, P.M. van Hagen, L. Boon, A. Orfao, J.J.M. van Dongen, **M.C. van Zelm** (2014) Human IgE+ B cells are derived from T cell-dependent and T cell-independent pathways. *J Allergy Clin Immunol.* 134(3):688-697.e6.
5. M.A. Berkowska, C. Grosserichter-Wagener, H. J. Adriaansen, D. de Ridder, K. Pagano Mirani-Oostdijk, H.J. Agteresch, S. Böttcher, A. Orfao, J.J.M. van Dongen, **M.C. van Zelm** (2014) Persistent Polyclonal B-cell Lymphocytosis: extensively proliferated CD27+IgM+IgD+ memory B cells with a distinctive immunophenotype. *Leukemia* 28(7):1560-4.
6. **M.C. van Zelm**, S.J.W. Bartol, G.J. Driessen, F. Mascart, I. Reisli, J.L. Franco, B. Wolska-Kusnierz, H. Kanegane, L. Boon, J.J.M. van Dongen, M. van der Burg (2014) Human CD19 and CD40L deficiencies impair antibody selection and differentially affect somatic hypermutation. *J Allergy Clin Immunol.* 134(1): 135-144.e7
7. M. Perez-Andres, C. Grosserichter-Wagener, C. Teodosio, J.J.M. van Dongen, A. Orfao, **M.C. van Zelm** (2011) The nature of circulating CD27+CD43+ B cells. *J Exp Med* 208:2565-2566.
8. M.A. Berkowska, G.J.A. Driessen, V. Bikos, C. Grosserichter-Wagener, K. Stamatopoulos, A. Cerutti, B. He, K. Biermann, J.F. Lange, M. van der Burg, J.J.M. van Dongen, **M.C. van Zelm** (2011) Human memory B cells originate from three distinct germinal center-dependent and -independent maturation pathways. *Blood* 118(8):2150-8.
9. S.E. Nodland, M.A. Berkowska, A. Bajer, N. Shah, D. de Ridder, J.J.M. van Dongen, T.W. LeBien, **M.C. van Zelm** (2011) IL-7R expression and IL-7 signaling confer a distinct phenotype on developing human B-lineage cells. *Blood* 118(8):2116-27.
10. **M.C. van Zelm**, J. Smet, B. Adams, F. Mascart, L. Schandené, F. Janssen, A. Ferster, C.C. Kuo, S. Levy, J.J.M. van Dongen, M. van der Burg (2010) *CD81* Gene Defect in an Antibody-deficient Patient Disrupts CD19-complex Formation and Impairs Terminal B-cell Differentiation. *J. Clin. Invest.* 120(4):1265-1274.
11. S. Jhunjhunwala*, **M.C. van Zelm***, M.M. Peak*, S. Cutchin, R. Riblet, J.J.M. van Dongen, F.G. Grosveld, T. A. Knoch, C. Murre. (2008) The 3D Structure of the Immunoglobulin Heavy-chain Locus: Implications for Long-range Genomic Interactions. *Cell.* 133(2):265-79. (* equal contribut)
12. **M.C. van Zelm**, C. Geertsema, N. Nieuwenhuis, D. de Ridder, M.E. Conley, C. Schiff, I. Tezcan, E. Bernatowska, N.G. Hartwig, E.A.M. Sanders, J. Litzman, I. Kondratenko, J.J.M. van Dongen, M. van der Burg. (2008) Immunodeficiency by Gross Deletion of *IGHM*, *BTK* or *Artemis*: A model for Genomic Lesions Mediated by Transposable Elements. *Am. J. Hum. Genet.* 82(2):320-32.
13. **M.C. van Zelm**, T. Szczepański, M. van der Burg, J.J.M. van Dongen. (2007) Replication History of B-lymphocytes Reveals Homeostatic Proliferation and Extensive Antigen-induced B-cell Expansion. *J. Exp. Med.* 204(3):645-55.
14. **M.C. van Zelm**, I. Reisli, M. van der Burg, D. Castaño, C.J. M. van Noesel, M.J.D. van Tol, C. Woellner, B. Grimbacher, P.J. Patiño, J.J.M. van Dongen, J.L. Franco. (2006) An Antibody-Deficiency Syndrome Due to Mutations in the CD19 Gene. *N. Engl. J. Med.* 354:1901-1912.
15. **M.C. van Zelm**, M. van der Burg, D. de Ridder, B.H. Barendregt, E.F.E. de Haas, M.J.T. Reinders, A.C. Lankester, T. Révész, F.J.T. Staal, J.J.M. van Dongen. (2005) Ig Gene Rearrangement Steps are initiated in Early Human Precursor-B-cell Subsets and Correlate with Specific Transcription Factor Expression. *J Immunol* 175(9): 5912-22.

Other International peer-reviewed publications

16. M.W. Wentink, A.J. Lambeck, **M.C. van Zelm**, E. Simons, J.J.M. van Dongen, H. IJspeert, E.H. Schölvink, M. van der Burg (2015). CD21 and CD19 deficiency: two defects in the same complex leading to different disease modalities. *Clin Immunol.* 161(2):120-127.

17. M. van Keimpema, L.J. Grüneberg, M. Mokry, R. van Boxtel, **M.C. van Zelm**, P. Coffey, S.T. Pals, and M. Spaargaren (2015) The forkhead transcription factor FOXP1 represses human plasma cell differentiation. *Blood*. pii: blood-2015-02-626176. [Epub]
18. M.A. Berkowska, J.-N. Schickel, C. Grosserichter-Wagener, D. de Ridder, Y.S. Ng, J.J.M. van Dongen, E. Meffre, **M.C. van Zelm** (2015) Circulating human CD27-IgA+ memory-B cells recognize bacteria with polyreactive immunoglobulins. *J Immunol*. 195(4):1417-26.
19. D. van den Heuvel, G.J.A. Driessen, M.A. Berkowska, M. van der Burg, A.W. Langerak, D. Zhao, H. Charif, N.G. Hartwig, A.M.C. van Rossum, P.L.A. Fraaij, J.J.M. van Dongen, **M.C. van Zelm** (2015) Persistent subclinical immune defects in HIV-1 infected children treated with antiretroviral therapy. *AIDS*. 29(14):1745-56.
20. J.J. Heeringa, M.C. van Zelm (2014) [The origin of specific IgE: memory B cells and plasma cells] *Neth J Allergy and Asthma* 15(3):71-77. Dutch
21. M.A.E. Jansen, D. van den Heuvel, **M.C. van Zelm**, V.W. Jaddoe, A. Hofman A, J.C. de Jongste, H. Hooijkaas, H.A. Moll (2015) Decreased memory B cells and increased CD8 memory T cells in blood of breastfed children: the generation R study. *PLoS One*.10(5):e0126019.
22. O.K. Alkhairy, R. Perez-Becker, G.J. Driessen, H. Abolhassani, J. van Montfrans, S. Borte, S. Choo, N. Wang, K. Tesselaar, M. Fang, K. Bienemann, K. Boztug, A. Daneva, F. Mechinaud, T. Wiesel, C. Becker, G. Dückers, K. Siepermann, **M.C. van Zelm**, N. Rezaei, M. van der Burg, A. Aghamohammadi, M.G. Seidel, T. Niehues, L. Hammarström (2015) Novel Mutations in TNFRSF7/CD27: Clinical, Immunological and Genetic Characterization of Human CD27 Deficiency. *J Allergy Clin Immunol*. 136(3):703-712.e10.
23. F. Vences-Catalán, C.C. Kuo, Y Sagi, H. Chen, N. Kela-Madar, **M.C. van Zelm**, J.J.M. van Dongen, S. Levy (2015) A mutation in the human tetraspanin CD81 gene is expressed as a truncated protein but does not enable CD19 maturation and cell surface expression. *J Clin Immunol*. 35(3):254-63.
24. N. Mitsui, X. Yang, S.J. Bartol, C. Grosserichter-Wagener, Y. Kosaka, H. Takada, K. Imai, H. Kanegane, S. Mizutani, M. van der Burg, **M.C. van Zelm**, O. Ohara, T. Morio (2015) Mutations in Bruton's tyrosine kinase impair IgA responses. *Int'l Journal of Hematology*. 101(3):305-13.
25. J.M. den Haan, R. Arens, **M.C. van Zelm** (2014) The activation of the adaptive immune system: Cross-talk between antigen-presenting cells, T cells and B cells. *Immunol Lett*. 162(2PB):103- 112.
26. K.L. Willmann, S. Klaver, F. Doğu, E. Santos-Valente, W. Garncarz, I. Bilic, E. Mace, E. Salzer, C. Domínguez Conde, H. Sic, P. Májek, P.P. Banerjee, G.I. Vladimer, S. Haskoloğlu, M. Gökalp Bolkent, A. Küpesiz, A. Condino-Neto, J. Colinge, G. Superti-Furga, W.F. Pickl, **M.C. van Zelm**, H. Eibel, J.S. Orange, A. İkinçioğulları, K. Boztuğ. (2014) Biallelic loss-of-function mutation in NIK causes a primary immunodeficiency with multifaceted aberrant lymphoid immunity. *Nat Commun*. 5:5360. doi: 10.1038/ncomms6360.
27. **M.C. van Zelm** (2014) B cells take their time: sequential IgG class switching over the course of an immune response? *Immunol Cell Biol* 92(8):645-6.
28. A.F. Muggen, S.Y. Pillai, L.P. Kil, **M.C. van Zelm**, J.J.M. van Dongen, R.W. Hendriks, A.W. Langerak (2014) Basal Ca2+ signaling is particularly increased in mutated chronic lymphocytic leukemia. *Leukemia* 29(2):321-8
29. V.H. van der Velden, P.C. Hoogeveen, D. de Ridder, M. Schindler-van der Struijk, **M.C. van Zelm**, M. Sanders, D. Karsch, H.B. Beverloo, K. Lam, A. Orfao, P.J. Lugtenburg, S. Böttcher, J.J. van Dongen, A.W. Langerak, M. Kappers-Klunne, K. van Lom (2014) B-cell prolymphocytic leukemia: a specific subgroup of mantle cell lymphoma. *Blood*. 124(3):412-9.
30. M. van der Burg, **M.C. van Zelm** (2014) Clinical Spectrum of SCID: The Key is in the Thymus? *Front Immunol*. 5:111.
31. R. Stadhouders, M.J. de Bruijn, M.B. Rother, S. Yuvaraj, C. Ribeiro de Almeida, P. Kolovos, **M.C. van Zelm**, W. van Ijcken W, F. Grosveld, E. Soler, R.W. Hendriks (2014) Pre-B Cell Receptor Signaling Induces Immunoglobulin κ Locus Accessibility by Functional Redistribution of Enhancer-Mediated Chromatin Interactions. *PLoS Biol*. 18;12(2):e1001791.
32. M.C. Castiello, M. Bosticardo, F. Pala, M. Catucci, N. Chamberlain, **M.C. van Zelm**, G.J. Driessen, M. Pac, E. Bernatowska, S. Scaramuzza, A. Aiuti, A.V. Sauer, E. Traggiai, E. Meffre, A. Villa, M. van der Burg (2014) Wiskott-Aldrich Syndrome protein deficiency perturbs the homeostasis of B-cell compartment in humans. *J Autoimmun*. 50:42-50.
33. K. Jensen, M.B. Rother, B. Sletbakk Brusletto, O.K. Olstad, H.C. Dalsbotten Aass, **M.C. van Zelm**, P. Kierulf, K.M. Gautvik (2013) Increased ID2 levels in adult precursor B cells as compared to children is associated with impaired Ig locus contraction and decreased bone marrow output. *J Immunol*. 191(3):1210-9.
34. G.J. Driessen, V.A. Dalm, P.M. van Hagen, H.A. Grashoff, N.G. Hartwig, A. van Rossum, A. Warris, E. de Vries, B.H. Barendregt, S. Chishimba, I. Pico, S. Posthumus, **M.C. van Zelm**, J.J.M. van

- Dongen, M. van der Burg (2013) Common Variable Immunodeficiency and Idiopathic Primary Hypogammaglobulinemia: two different conditions within the same disease spectrum. *Haematologica* 98(10):1617-23.
35. L.A. Labuda, U. Ateba Ngoa, E. Ngoune Feugap, J.J. Heeringa, L.E.P.M van der Vlugt, R.B.A. Pires, L. Mewono, P.G. Kremsner, **M.C. van Zelm**, A.A. Adegniko, M. Yazdanbakhsh, H.H. Smits (2013) Alterations in Peripheral Blood B Cell Subsets and Dynamics of B Cell Responses During Human Schistosomiasis. *PLoS Neglect Trop Dis* 7(3):e2094.
 36. G.J. Driessen, H. IJspeert, C.M.R. Weemaes, A. Haraldsson, M. Trip, A. Warris, M. van der Flier, N. Wulffraat, M.M.M. Verhagen, M.A. Taylor, **M.C. van Zelm**, J.J.M. van Dongen, M. van Deuren, M. van der Burg (2013) Antibody deficiency in Ataxia Telangiectasia is caused by disturbed B and T cell homeostasis and reduced immune repertoire diversity. *J Allergy Clin Immunol.* 131(5):1367-75.e9.
 37. L.S. Kamphuis, **M.C. van Zelm**, K.H. Lam, G.F. Rimmelzwaan, G.S. Baarsma, W.A. Dik, H.B. Thio, P.L. van Daele, M.E van Velthoven, M.R. Batstra, P.M. van Hagen, J.A. van Laar (2013) Peri-granuloma localization and abnormal maturation of B cells: emerging key players in sarcoidosis? *Am J Resp Crit Care* 187(4):406-16.
 38. C. Kamae, N. Nakagawa, H. Sato, K. Honma, N. Mitsuiki, O. Ohara, H. Kanegane, S. Pasic, Q. Pan-Hammarström, **M.C. van Zelm**, T. Morio, K. Imai, S. Nonoyama (2013) Classification of common variable immunodeficiency by quantification of T cell receptor and Ig kappa-deleting recombination excision circles *J Allergy Clin Immunol* 131(5):1437-40.e5.
 39. **M.C. van Zelm** (2012) CD27+IgM+IgD+ B cells: T-cell or TLR dependent? *Blood* 120(25):4905-6.
 40. M. van der Burg, **M.C. van Zelm**, G.J.A. Driessen, J.J.M. van Dongen (2012) New frontiers of primary antibody deficiencies. *Cell Mol Life Sci* 69(1):59-73.
 41. X. Yang, H. Kanegane, N. Nishida, T. Imamura, K. Hamamoto, R. Miyashita, K. Imai, S. Nonoyama, K. Sanayama, A. Yamaide, F. Kato, K. Nagai., E. Ishii, **M.C. van Zelm**, S. Latour, X. Zhao, T. Miyawaki (2012) Clinical and genetic characteristics of XIAP deficiency in Japan. *J Clin Immunol.* 32(3):411-20
 42. G.J. Driessen, **M.C. van Zelm**, P.M. van Hagen, N.G. Hartwig, M. Trip, A. Warris, E. de Vries, B. Barendregt, I. Pico, W. Hop, J.J.M. van Dongen and M. van der Burg (2011) B-cell replication history and somatic hypermutation status identify distinct pathophysiological backgrounds in common variable immunodeficiency. *Blood* 118(26):6814-23
 43. M.A. Berkowska, M. van der Burg, J.J.M. van Dongen, **M.C. van Zelm** (2011) Checkpoints of B cell differentiation: visualizing Ig-centric processes. *Ann NY Acad Sci* 1246(1):11-25
 44. T. Arai, M. Zhao, H. Kanegane, **M.C. van Zelm**, T. Futatani, M. Yamada, T. Ariga, H.D. Ochs, T. Miyawaki, T. Oh-Ishi (2011) Genetic analysis of contiguous X-chromosome deletion syndrome encompassing the BTK and TIMM8A genes. *J Hum Genet.* 56(8):577-82.
 45. H. IJspeert, A.C. Lankester, J.M. van den Berg, W. Wiegant, **M.C. van Zelm**, C.M.R. Weemaes, A. Warris, Q. Pan-Hammarström, A. Pastink, M.J.D. van Tol, J.J.M. van Dongen, D.C. van Gent, M. van der Burg (2011) Artemis splice defects cause atypical SCID and can be restored *in vitro* by an antisense oligonucleotide. *Genes Immun.* 12(6):434-44.
 46. **M.C. van Zelm**, J. Smet, M. van der Burg, A. Ferster, P.Q. Le, L. Schandené, J.J.M. van Dongen, F. Mascart (2011) Antibody deficiency due to a missense mutation in CD19 demonstrates the importance of the conserved tryptophan 41 in immunoglobulin superfamily domain formation *Hum Mol Genet.* 20(9):1854-63.
 47. **M.C. van Zelm**, M. van der Burg, A.W. Langerak, J.J.M. van Dongen (2011) PID comes full circle: Applications of V(D)J recombination excision circles in research, diagnostics and newborn screening of primary immunodeficiency disorders *Front Immunol*, 2(12):1-9.
 48. J. Smet, **M.C. van Zelm**, L. Schandené, B. Adams, M. van der Burg, F. Mascart (2011) [CD81 has a key role in B lymphocyte function]. *Med Sci (Paris)*. 2011 Jan;27(1):33-5. French
 49. D. Zubakov, F. Liu, **M.C. van Zelm**, J. Vermeulen, B.A. Oostra, C.M. van Duijn, G.J. Driessen, J.J.M. van Dongen, M. Kayser, A.W. Langerak (2010) Estimating human age from T-cell DNA rearrangements. *Curr Biol.* 20(22):R970-1.
 50. M. Pérez-Andres, B. Paiva, W.G. Nieto, A. Caraux, A. Schmitz, J. Almeida, R.F. Vogt Jr, G.E. Marti, A.C. Rawstron, **M.C. van Zelm**, J.J.M. van Dongen, H.E. Johnsen, B. Klein, A. Orfao (2010) Human peripheral blood B-cell compartments: a crossroad in B-cell traffic. *Cytometry Part B (Clinical Cytometry)* 78B (Suppl. 1):S47–S60.
 51. H. Artac, I. Reisli, R. Kara, I. Pico-Knijenburg, S. Adin-Çinar, S. Pekcan, C.M. Jol-van der Zijde, M.J.D. van Tol, L.E. Bakker-Jonges, J.J.M. van Dongen, M. van der Burg, **M.C. van Zelm** (2010) B-cell Maturation and Antibody Responses in Individuals Carrying a Mutated CD19 Allele. *Genes Immun.* 11(7):523-30.

52. L. Woodbine, S. Grigoriadou, A.A. Goodarzi, E. Riballo, C. Tape, A.W. Oliver, **M.C. van Zelm**, M.S. Buckland, E.G. Davies, L.H. Pearl, P.A. Jeggo (2010) An Artemis polymorphic variant reduces Artemis activity and confers cellular radiosensitivity. *DNA Repair (Amst)*. 9(9):1003-10.
53. S. Jhunjhunwala, **M.C. van Zelm**, M.M. Peak, C. Murre (2009) Chromatin architecture and the generation of antigen receptor diversity. *Cell*. 138(3):435-48.
54. K. van Bilsen, G.J. Driessen, R.A. de Paus, E. van de Vosse, K. van Lom, **M.C. van Zelm**, K.H. Lam, N.G. Hartwig, G.S. Baarsma, M. van der Burg, P.M. van Hagen (2008) Low level IGF-1 and common variable immune deficiency: an unusual combination. *Neth J Med*. 66(9):368-372.
55. **M.C. van Zelm**, M. van der Burg, J.J.M. van Dongen. (2007) Homeostatic and Maturation-associated Proliferation in the Peripheral B-Cell Compartment. *Cell Cycle*. 6(23):2890-2895.
56. H. Kanegane, K. Agematsu, T. Futatani, M. Mohamed Sira, K. Suga, T. Sekiguchi, **M.C. van Zelm**, T. Miyawaki (2007) Novel mutations in a Japanese patient with CD19 deficiency. *Genes Immun*. 8:663-670.