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B GRG & PUBLICATIONS

Bergen Giardia Research Group (BGRG) is a network of scientists and physicians who cooperate in planning and implementing research projects to evaluate the long term sequelae after the *Giardia* epidemic and to understand the mechanisms behind these. Some treatment trials have also been conducted. We hope this research will lead to treatment alternatives for these conditions.

[Publication list \(updated August 2023\):](#)

1. Nygard K, Schimmer B, Sobstad O, Walde A, Tveit I, Langeland N, Hausken T, Aavitsland P. [A large community outbreak of waterborne giardiasis-delayed detection in a non-endemic urban area.](#) BMC Public Health. 2006 May 25;6:141.
2. Robertson LJ, Hermansen L, Gjerde BK, Strand E, Alvsåg JO, Langeland N. [Application of genotyping during an extensive outbreak of waterborne giardiasis in Bergen, Norway, during autumn and winter 2004.](#) Appl Environ Microbiol. 2006; 72:2212-7.
3. Robertson LJ, Forberg T, Hermansen L, Gjerde BK, Alvsåg JO, Langeland N. [Cryptosporidium parvum infections in Bergen, Norway, during an extensive outbreak of waterborne giardiasis in autumn and winter 2004.](#) App Environ Microbiol. 2006;72(3):2218-20
4. Robertson LJ, Forberg T, Hermansen L, Gjerde BK and Langeland N. [Molecular characterisation of Giardia isolates from clinical infection following a waterborne outbreak.](#) J Infect. 2007 Jul;55(1):79-88.
5. Robertson LJ, Forberg T, Hermansen L, Gjerde B, Langeland N. [Demographics of Giardia infections in Bergen, Norway, subsequent to a waterborne outbreak.](#) Scand J Infect Dis. 2007 Jul 31;:1-4
6. Wensaas KA, Langeland N, Rørtveit G. [Uncovering the giardiasis-outbreak in Bergen 2004.](#) Tidsskr Nor Laegeforen. 2007 Sep 6;127(17):2222-5
7. Hanevik K, Hausken T, Morken MH, Strand EA, Mørch K, Coll P, Helgeland L, Langeland N. [Persisting symptoms and duodenal inflammation related to Giardia duodenalis infections.](#) J Infect. 2007 Dec;55(6):524-30.
8. Dizdar V, Gilja OH, Hausken T. [Increased visceral sensitivity in Giardia-induced postinfectious irritable bowel syndrome and functional dyspepsia. Effect of the 5HT3-antagonist ondansetron.](#) Neurogastroenterol Motil. 2007 Dec;19(12):977-82
9. Hanevik K, Mørch K, Eide GE, Langeland N, Hausken T. [Effects of albendazole/metronidazole or tetracycline/folate treatments on persisting symptoms after Giardia infection: a randomised open clinical trial.](#) Scand J Infect Dis. 2008;40(6-7):517-22
10. Mørch K, Hanevik K, Robertson LJ, Strand EA, Langeland N. [Treatment-ladder and genetic characterisation of parasites in refractory giardiasis after an outbreak in Norway.](#) J Infect. 2008 Apr;56(4):268-73.
11. Robertson LJ, Forberg T, Gjerde B (2008). [Giardia cysts in sewage influent in Bergen, Norway over one year after an extensive outbreak of giardiasis.](#) J. Appl. Microbiol. 104: 1147-1152.
12. Strand, E.A., Robertson, L.J., Alvsåg, J.O. et al. (2008). [Sensitivity of a Giardia antigen test in persistent giardiasis following an extensive outbreak.](#) Clin Microbiol Infect. 2008 Nov;14(11):1069-71.

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13. Wensaas KA, Langeland N, Rortveit G. Prevalence of recurring symptoms after infection with *Giardia lamblia* in a non-endemic area. *Scand J Prim Health Care.* 2008 Dec 12:1-6.
14. Mørch K, Hanevik K, Rortveit G, Wensaas KA, Langeland N. High rate of fatigue and abdominal symptoms 2 years after an outbreak of giardiasis. *Trans R Soc Trop Med Hyg.* 2009 May;103(5):530-2.
15. Hanevik K, Dizdar V, Langeland N, Hausken T. Development of functional gastrointestinal disorders after *Giardia lamblia* infection. *BMC Gastroenterology* 2009, 9:27.
16. Mørch K, Hanevik K, Rortveit G, Wensaas KA, Eide GE, Hausken T, Langeland N. Severity of Giardia infection associated with post-infectious fatigue and abdominal symptoms two years after. *BMC Infect Dis.* 2009, 9:206. doi:10-1186/1471-2334-9-206
17. Robertson LJ, Hanevik K, Escobedo AA, Mørch K, Langeland N. Giardiasis—why do the symptoms sometimes never stop. *Trends Parasitol.* 2010 Jan; 26(2):75-82
18. Dizdar V, Spiller R, Singh G, Hanevik K, Gilja OH, El-Salhy M, Hausken T. Relative importance of abnormalities of CCK (cholecystokinin) and 5-HT(serotonin) in Giardia-induced post-infectious irritable bowel syndrome and functional dyspepsia. *Aliment Pharmacol Ther.* 2010 Feb 2.
19. Wensaas KA, Langeland N, Rortveit G. Post-infectious gastrointestinal symptoms after acute giardiasis. A 1-year follow-up in general practice. *Fam Pract.* 2010 Jun;27(3):255-9. 2010 Mar 22.
20. Mellingen KM, Midtun A, Hanevik K, Eide GE, Søbstad Ø, Langeland N. Post epidemic giardiasis and gastrointestinal symptoms among preschool children in Bergen, Norway. A cross-sectional study. *BMC Public Health.* 2010 Mar 26;10:163.
21. Escobedo AA, Almirall P, Robertson LJ, Franco RM, Hanevik K, Mørch K, Cimerman S. Giardiasis: the ever-present threat of a neglected disease. *Infect Disord Drug Targets.* 2010 Oct 1;10(5):329-48.
22. Hanevik K, Dizdar V, Langeland N, Eide GE, Hausken T. Tolerability and effect of mesalazine in postinfectious irritable bowel syndrome. *Aliment Pharmacol Ther.* 2011 Jul;34(2):259-60.
23. Wensaas KA, Langeland N, Hanevik K, Mørch K, Eide GE, Rørtveit, G. Irritable bowel syndrome and chronic fatigue three years after acute giardiasis: historic cohort study. *Gut* 2012;61:214-19.
24. Hanevik K, Kristoffersen E, Svard S, Bruserud O, Ringqvist E, Sørnes S, Langeland N. Human Cellular Immune Response Against *Giardia lamblia* 5 Years After, Acute Giardiasis. *J Infect Dis.* 2011 Dec;204(11):1779-86.
25. Hunskar GS, Langeland N, Wensaas KA, Hanevik K, Eide GE, Mørch K, Rortveit G. The impact of atopic disease on the risk of post-infectious fatigue and irritable bowel syndrome 3 years after Giardia infection. A historic cohort study. *Scand J Gastroenterol.* 2012 Jul 2.
26. Hanevik K, Kristoffersen EK, Sørnes S, Mørch K, Næss H, Rivenes AC, Bødtker JE, Hausken T, Langeland N. Immunophenotyping in post-giardiasis functional gastrointestinal disease and chronic fatigue syndrome. *BMC Infect Dis.* 2012 Oct 14;12(1):258
27. Mørch K, Hanevik K, Rivenes AC, Bødtker JE, Næss H, Stubhaug B, Wensaas KA, Rortveit G, Eide GE, Hausken T, Langeland N. Chronic fatigue syndrome 5 years after giardiasis: differential diagnoses, characteristics and natural course. *BMC Gastroenterol.* 2013 Feb 12;13(1):28
28. Hanevik K, Wensaas KA, Rortveit G, Eide GE, Mørch K, Langeland N. Irritable bowel syndrome and chronic fatigue six years after Giardia infection: a controlled prospective cohort study. *Clin Infect Dis.* Advance access online August 12, 2014.
29. Hanevik K, Bakken R, Brattbakk HR, Saghaug CS, Langeland N. Whole genome sequencing of clinical isolates of *Giardia lamblia*. *Clin Microbiol Infect.* 2015 Feb;21(2):192.e1-3.
30. Persson R, Wensaas KA, Hanevik K, Eide GE, Langeland N, Rortveit G. The

- [relationship between irritable bowel syndrome, functional dyspepsia, chronic fatigue and overactive bladder syndrome: a controlled study 6 years after acute gastrointestinal infection](#). BMC Gastroenterol. 2015 Jun 10;15:66.
31. Saghaug CS, Sørnes S, Peirasmaki D, Svärd S, Langeland N, Hanevik K. [Human Memory CD4+ T Cell Immune Responses against Giardia lamblia](#). Clin Vaccine Immunol. 2015 Sep 16;23(1):11-8.
32. Robertson LJ, Tysnes KR, Hanevik K, Langeland N, Mørch K, Hausken T, Nygård K. [Dogs as the source of Giardia in Bergen in 2004 – barking up the wrong tree?](#) Tidsskr Nor Laegeforen. 2015 Oct 20;135(19):1718-20.
33. Litleskare S, Wensaas KA, Eide GE, Hanevik K, Kahrs GE, Langeland N, Rortveit G. [Perceived food intolerance and irritable bowel syndrome in a population 3 years after a giardiasis-outbreak: a historical cohort study](#). BMC Gastroenterol. 2015 Nov 19;15:164.
34. Wensaas KA, Hanevik K, Hausken T, Eide GE, Langeland N, Mørch K, Rortveit G. [Postinfectious and sporadic functional gastrointestinal disorders have different prevalences and rates of overlap: results from a controlled cohort study 3 years after acute giardiasis](#). Neurogastroenterol Motil. 2016 May 18.
35. Hunskar GS, Bjorvatn B, Wensaas KA, Hanevik K, Eide GE, Langeland N, Rortveit G. [Excessive daytime sleepiness, sleep need and insomnia 3 years after Giardia infection: a cohort study](#). Sleep Health. 2016 June. Volume 2, Issue 2, Pages 154–158.
36. Hanevik K, Kristoffersen E, Mørch K, Rye KP, Sørnes S, Svärd S, Bruserud Ø, Langeland N. [Giardia-specific cellular immune responses in post-giardiasis chronic fatigue syndrome](#). BMC Immunol. 2017 Jan 28;18(1):5.
37. Radunovic M, Klotz C, Saghaug CS, Brattbakk HR, Aebischer T, Langeland N, Hanevik K. [Genetic variation in potential Giardia vaccine candidates cyst wall protein 2 and α1-giardin](#). Parasitol Res. 2017 Jun 3.
38. Litleskare S, Rortveit G, Eide GE, Hanevik K, Langeland N, Wensaas KA. [Prevalence of Irritable Bowel Syndrome and Chronic Fatigue 10 Years after Giardia Infection](#). Clin Gastroenterol Hepatol. 2018 Jan 25.
39. Hanevik K, Wik E, Langeland N, Hausken T. [Transient elevation of anti-transglutaminase and anti-endomysium antibodies in Giardia infection](#). Scand J Gastroenterol. 2018 Jun 16;1-4. doi: 10.1080/00365521.2018.1481522
40. Hjøllo T, Bratland E, Steinsland H, Radunovic M, Langeland N, Hanevik K. [Longitudinal cohort study of serum antibody responses towards Giardia lamblia variant-specific surface proteins in a non-endemic area](#). Exp Parasitol. 2018 Jun 14. doi: 10.1016/j.exppara.2018.06.005
41. Lalle M & Hanevik K. [Treatment-refractory giardiasis: challenges and solutions](#). Infection and Drug Resistance 2018;11 1921–1933.
42. Dizdar V, Hausken T, Larum OD, Gilja OH, Langeland N, Hanevik K. [Prolonged duodenal mucosal lymphocyte alterations in patients with and without post infectious functional gastrointestinal disorders after Giardia infection](#). J Infect Dis. 2018 epub Nov 30.
43. Litleskare S, Rortveit G, Eide GE, Emberland KE, Hanevik K, Langeland N, Wensaas KA. [Quality of life and its association with irritable bowel syndrome and fatigue ten years after giardiasis](#). Neurogastroenterol Motil. 2019 May;31(5):e13559
44. Davids BJ, Liu CM, Hanson EM, Le C, Ang J, Hanevik K, Fischer M, Radunovic M, Langeland N, Ferella M, Svärd SG, Ghassanian M, Miyamoto Y, Eckmann L. [Identification of conserved candidate vaccine antigens in the surface proteome of Giardia lamblia](#). Infect Immun. 2019 Apr 8. pii: IAI.00219-19
45. Christina S Saghaug CS, Klotz C, Kallio JP, Brattbakk HR, Stokowy T, Aebischer T, Kursula I, Langeland N, Hanevik K. [Genetic variation in metronidazole metabolism and oxidative stress pathways in clinical Giardia lamblia assemblage A and B isolates](#). Infection and Drug Resistance 2019;12 1221–1235
46. Martínez C, Lasitschka F, Thöni C, Wohlfarth C, Braun A, Granzow M, Röth R, Dizdar V, Rappold GA, Hausken T, Langeland N, Hanevik K, Niesler B. [Comparative expression profiling in the intestine of patients with Giardia-induced postinfectious functional](#)

- [gastrointestinal disorders](#). Neurogastroenterol Motil. 2020 Sep;32(9):e13868.
47. Mørch K, Hanevik K. [Giardiasis treatment: an update with a focus on refractory disease](#). Curr Opin Infect Dis. 2020;33(5):355-364
48. Saghaug CS, Klotz C, Kallio JP, Aebischer T, Langeland N, Hanevik K. [Genetic Diversity of the Flavohemoprotein Gene of Giardia lamblia: Evidence for High Allelic Heterozygosity and Copy Number Variation](#). Infect Drug Resist. 2020 Dec 18;13:4531-4545
49. Hunskar GS, Rortveit G, Litleskare S, Eide GE, Hanevik K, Langeland N, Wensaas KA. [Prevalence of fibromyalgia 10 years after infection with Giardia lamblia: a controlled prospective cohort study](#). Scand J Pain. 2021 Oct 22.
50. Hanevik K, Saghaug C, Aaland M, Mørch K, Langeland N. [No difference in serum levels of B-cell activating receptor and antibodies against cytolethal distending toxin B and flagellin in post-infectious irritable bowel syndrome and chronic fatigue syndrome after Giardia infection](#). JGH Open. 2022 Mar 14;6(3):185-188.
51. Saghaug CS, Gamlem AL, Hauge KB, Vahokoski J, Klotz C, Aebischer T, Langeland N, Hanevik K. [Genetic diversity in the metronidazole metabolism genes nitroreductases and pyruvate ferredoxin oxidoreductases in susceptible and refractory clinical samples of Giardia lamblia](#). Int J Parasitol Drugs Drug Resist. 2023 Apr;21:51-60.

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