

This document is **Hyperlinked**  
Just click on any heading to see the Pubmed abstract

Blastocystis and Related Studies Categorized by Various Criteria

-Ken Boorom

Blastocystis Research Foundation

<http://www.bhomcenter.org>

Corvallis, Oregon

March 17, 2012

Section 1: Studies Identifying Blastocystis as Pathogenic or Correlated with Symptoms (157 studies) .....	3
Section 2: Studies Identifying Blastocystis as Non-Pathogenic or Uncorrelated With Symptoms (17 studies) .....	18
Section 2A: Studies Identifying Giardia and E. histolytica as Non-Pathogenic, Uncorrelated with Symptoms, or Not Requiring Treatment (37 studies) .....	20
Section 3: Studies of Blastocystis and Irritable Bowel Syndrome (IBS) (22 studies) ..	24
Section 4: Studies Linking Blastocystis to Inflammatory Bowel Disease (12 studies) ..	27
Section 5: Studies Describing the Physiological Effect of Blastocystis in Humans and Pathogenesis of Blastocystosis (16 studies) .....	29
Section 6: Studies Describing How to Detect Blastocystis in Humans (31 studies) .....	31
Section 7: Animal Models for Blastocystis Infection (19 studies) .....	35
Section 8: Antibody Response to Blastocystis (19 studies) .....	37
Section 9: Culturing Blastocystis (63 studies) .....	39
Section 10: PCR Detection of Blastocystis (50 studies) .....	45
Section 11: Blastocystis Treatment Studies and Reviews .....	50
Section 12: Studies Identifying Percent of Blastocystis Monoinfections that are Symptomatic .....	54

This document is **Hyperlinked**  
Just click on any heading to see the Pubmed abstract

## Revision History

March 20, 2011	Initial version
February 10, 2012	Combined pathogenic/non-pathogenic into one PDF, added 2011 studies, added category 2A studies identifying <i>Giardia intestinalis</i> , <i>Entamoeba histolytica</i> , <i>Cryptosporidium parvum</i> as non-pathogenic. Added categories 3-12.
March 17, 2012	Cleaned up formatting, fixed hyperlinks

This document is **Hyperlinked**  
Just click on any heading to see the Pubmed abstract

## Section 1: Studies Identifying Blastocystis as Pathogenic or Correlated with Symptoms (157 studies)

1. [The pathogenic role of different \*\*Blastocystis\*\* hominis genotypes isolated from patients with irritable bowel syndrome.](#) Fouad SA, Basyoni MM, Fahmy RA, Kobaisi MH. Arab J Gastroenterol. 2011 Dec;12(4):194-200. Epub 2011 Dec 20. PMID: 22305500
2. [Findings related to IL-8 and IL-10 gene polymorphisms in a Mexican patient population with irritable bowel syndrome infected with \*\*Blastocystis\*\*.](#) Olivo-Diaz A, Romero-Valdovinos M, Gudiño-Ramirez A, Reyes-Gordillo J, Jimenez-Gonzalez DE, Ramirez-Miranda ME, Martinez-Flores WA, Martinez-Hernandez F, Flisser A, Maravilla P. Parasitol Res. 2012 Jan 28. [Epub ahead of print] PMID: 22287022
3. [Effects of symptomatic and asymptomatic isolates of \*\*Blastocystis\*\* hominis on colorectal cancer cell line, HCT116.](#) Chan KH, Chandramathi S, Suresh K, Chua KH, Kuppusamy UR. Parasitol Res. 2012 Jan 26. [Epub ahead of print] PMID: 22278727
4. [\[Irritable Bowel Syndrome: Frequency and phylogenetic relationship of \*\*Blastocystis\*\* sp. from Mexican patients\].](#) Ramírez-Miranda ME, Jiménez-González DE, Rodríguez-Campa ME, González-Angulo A, Hernández-Castellanos R, Sara Arroyo-Escalante A, Romero-Valdovinos M, Martínez-Hernández F, Flisser A, Maravilla P. Rev Gastroenterol Mex. 2011 Oct;76(4):309-15. Spanish. PMID: 22188955
5. [\*\*Blastocystis\*\* hominis as a contributing risk factor for development of iron deficiency anemia in pregnant women.](#) El Deeb HK, Salah-Eldin H, Khodeer S. Parasitol Res. 2011 Dec 14. [Epub ahead of print] PMID: 22167376
6. [\*\*BLASTOCYSTIS\*\* SUBTYPES IN SYMPTOMATIC AND ASYMPTOMATIC FAMILY MEMBERS AND PETS AND RESPONSE TO THERAPY.](#) Nagel R, Cuttell L, Stensvold CR, Mills PC, Bielefeldt-Ohmann H, Traub RJ. Intern Med J. 2011 Oct 27. doi: 10.1111/j.1445-5994.2011.02626.x. [Epub ahead of print] PMID: 22032439
7. [A study on \*\*Blastocystis\*\* hominis in food-handlers: diagnosis and potential pathogenicity.](#) Fathy FM. J Egypt Soc Parasitol. 2011 Aug;41(2):433-53. PMID: 21980782
8. [\*\*Blastocystis\*\* infection is associated with irritable bowel syndrome in a Mexican patient population.](#) Jimenez-Gonzalez DE, Martinez-Flores WA, Reyes-Gordillo J, Ramirez-Miranda ME, Arroyo-Escalante S, Romero-Valdovinos M, Stark D, Souza-Saldivar V, Martinez-Hernandez F, Flisser A, Olivo-Diaz A, Maravilla P. Parasitol Res. 2011 Aug 26. [Epub ahead of

This document is **Hyperlinked**  
Just click on any heading to see the Pubmed abstract

print] PMID: 21870243

9. [Study of \*\*Blastocystis\*\* hominis isolates in urticaria: a case-control study.](#) Zuel-Fakkar NM, Abdel Hameed DM, Hassanin OM. Clin Exp Dermatol. 2011 Dec;36(8):908-10. doi: 10.1111/j.1365-2230.2011.04127.x. Epub 2011 Jul 25. PMID: 21790724
10. [Blastocystis](#) sp. subtype 4 is common in Danish **Blastocystis**-positive patients presenting with acute diarrhea. Stensvold CR, Christiansen DB, Olsen KE, Nielsen HV. Am J Trop Med Hyg. 2011 Jun;84(6):883-5. PMID: 21633023
11. [An unusual case of invasive \*\*Blastocystis\*\* hominis infection.](#) Janarthanan S, Khoury N, Antaki F. Endoscopy. 2011;43 Suppl 2 UCTN:E185-6. Epub 2011 May 16. No abstract available. PMID: 21590594
12. [A case-control study of \*\*Blastocystis\*\* hominis among Iranian population.](#) Rostami Nejad M, Nazemalhosseini Mojarad E, Dabiri H, Nochi Z, Pourhoseingholi MA, Sahebkhitiari N, Habibi M, Zali MR. East Afr J Public Health. 2010 Mar;7(1):101-4. PMID: 21413584
13. [Protease activity of \*\*Blastocystis\*\* hominis subtype3 in symptomatic and asymptomatic patients.](#) Abdel-Hameed DM, Hassanin OM. Parasitol Res. 2011 Aug;109(2):321-7. Epub 2011 Jan 29. PMID: 21279383
14. [The potential use of 29 kDa protein as a marker of pathogenicity and diagnosis of symptomatic infections with \*\*Blastocystis\*\* hominis.](#) Abou Gamra MM, Elwakil HS, El Deeb HK, Khalifa KE, Abd Elhafiz HE. Parasitol Res. 2011 May;108(5):1139-46. Epub 2010 Dec 7. PMID: 21136081
15. [Blastocystis](#) sp. subtype 4 is common in Danish **Blastocystis**-positive patients presenting with acute diarrhea. Stensvold CR, Christiansen DB, Olsen KE, Nielsen HV. Am J Trop Med Hyg. 2011 Jun;84(6):883-5. PMID: 21633023
16. [Protease activity of \*\*Blastocystis\*\* hominis subtype3 in symptomatic and asymptomatic patients.](#) Abdel-Hameed DM, Hassanin OM. Parasitol Res. 2011 Aug;109(2):321-7. Epub 2011 Jan 29. PMID: 21279383
17. [The potential use of 29 kDa protein as a marker of pathogenicity and diagnosis of symptomatic infections with \*\*Blastocystis\*\* hominis.](#) Abou Gamra MM, Elwakil HS, El Deeb HK, Khalifa KE, Abd Elhafiz HE. Parasitol Res. 2011 May;108(5):1139-46. Epub 2010 Dec 7. PMID: 21136081
18. [Comparison of methods for detection of \*\*Blastocystis\*\* infection in routinely submitted stool samples, and also in IBS/IBD Patients in Ankara, Turkey.](#) Dogruman-AI F, Simsek Z, Boorum K, Ekici E, Sahin M, Tuncer C, Kustimur S, Altinbas A. PLoS One. 2010 Nov 18;5(11):e15484.

This document is **Hyperlinked**  
Just click on any heading to see the Pubmed abstract

PMID: 21124983 **Free PMC Article**

19. [Six ulcerative colitis patients with refractory symptoms co-infective with Blastocystis hominis in China.](#) Tai WP, Hu PJ, Wu J, Lin XC. Parasitol Res. 2011 May;108(5):1207-10. Epub 2010 Nov 23. PMID: 21104272
20. [Clinical efficacy of Saccharomyces boulardii or metronidazole in symptomatic children with Blastocystis hominis infection.](#) Dinleyici EC, Eren M, Dogan N, Reyhanioglu S, Yargic ZA, Vandenplas Y. Parasitol Res. 2011 Mar;108(3):541-5. Epub 2010 Oct 5. PMID: 20922415
21. [Elevated levels of urinary hyaluronidase in humans infected with intestinal parasites.](#) Chandramathi S, Suresh K, Kuppusamy UR. Ann Trop Med Parasitol. 2010 Jul;104(5):449-52. No abstract available. PMID: 20819313
22. [Blastocystis hominis and Dientamoeba fragilis in patients fulfilling irritable bowel syndrome criteria.](#) Yakoob J, Jafri W, Beg MA, Abbas Z, Naz S, Islam M, Khan R. Parasitol Res. 2010 Aug;107(3):679-84. Epub 2010 Jun 8. PMID: 20532564
23. [Pathogenic potential of Blastocystis hominis in laboratory mice.](#) Elwakil HS, Hewedi IH. Parasitol Res. 2010 Aug;107(3):685-9. Epub 2010 May 25. PMID: 20499092
24. [\[Clinical and epidemiological characteristics of blastocystis hominis\].](#) Trabelsi S, Ali IB, Khaled S. Tunis Med. 2010 Mar;88(3):190-2. French. PMID: 20415193 **Free Article**
25. [Blastocystis sp. subtype 2 detection during recurrence of gastrointestinal and urticarial symptoms.](#) Vogelberg C, Stensvold CR, Monecke S, Ditzen A, Stopsack K, Heinrich-Gräfe U, Pöhlmann C. Parasitol Int. 2010 Sep;59(3):469-71. Epub 2010 Apr 2. PMID: 20363362
26. [Urinary hyaluronidase activity in rats infected with Blastocystis hominis--evidence for invasion?](#) Chandramathi S, Suresh KG, Mahmood AA, Kuppusamy UR. Parasitol Res. 2010 May;106(6):1459-63. Epub 2010 Apr 1. PMID: 20358228
27. [Encystation--survival of Blastocystis hominis in immunocompetent mice abdomen cavity.](#) Zhou XB, Zhang X, Qiao JY, Cai J, Cheng S, Yuan Y, Li J. Parasitol Res. 2010 May;106(6):1315-20. Epub 2010 Mar 20. PMID: 20306208
28. [Irritable bowel syndrome: is it associated with genotypes of Blastocystis hominis.](#) Yakoob J, Jafri W, Beg MA, Abbas Z, Naz S, Islam M, Khan R. Parasitol Res. 2010 Apr;106(5):1033-8. Epub 2010 Feb 23. Erratum in: Parasitol Res. 2011 Dec;109(6):1745. PMID: 20177906
29. [Solubilized antigen of Blastocystis hominis facilitates the growth of human colorectal cancer cells, HCT116.](#) Chandramathi S, Suresh K, Kuppusamy UR. Parasitol Res. 2010

This document is **Hyperlinked**  
Just click on any heading to see the Pubmed abstract

Mar;106(4):941-5. Epub 2010 Feb 18. PMID: 20165878

30. [Intestinal protozoa infections among patients with ulcerative colitis: prevalence and impact on clinical disease course.](#) Yamamoto-Furusho JK, Torijano-Carrera E. Digestion. 2010;82(1):18-23. Epub 2010 Feb 9. PMID: 20145404
31. [\[The effect of trimethoprim-sulfamethoxazole in Blastocystis hominis infection\].](#) Ertuğ S, Dost T, Ertabaklar H, Gültekin B. Turkiye Parazitoloj Derg. 2009;33(4):270-2. Turkish. PMID: 20101575 **Free Article**
32. [Differences in clinical significance and morphologic features of Blastocystis sp subtype 3.](#) Vassalos CM, Spanakos G, Vassalou E, Papadopoulou C, Vakalis N. Am J Clin Pathol. 2010 Feb;133(2):251-8. PMID: 20093234 **Free Article**
33. [Molecular characterization of Blastocystis isolates from zoo animals and their animal-keepers.](#) Parkar U, Traub RJ, Vitali S, Elliot A, Levecke B, Robertson I, Geurden T, Steele J, Drake B, Thompson RC. Vet Parasitol. 2010 Apr 19;169(1-2):8-17. Epub 2010 Jan 4. PMID: 20089360
34. [High levels of oxidative stress in rats infected with Blastocystis hominis.](#) Chandramathi S, Suresh K, Shuba S, Mahmood A, Kuppusamy UR. Parasitology. 2010 Apr;137(4):605-11. Epub 2009 Dec 7. PMID: 19961647
35. [Blastocystis subtypes in irritable bowel syndrome and inflammatory bowel disease in Ankara, Turkey.](#) Dogruman-Al F, Kustimur S, Yoshikawa H, Tuncer C, Simsek Z, Tanyuksel M, Araz E, Boorum K. Mem Inst Oswaldo Cruz. 2009 Aug;104(5):724-7. PMID: 19820833 **Free Article**
36. [Blastocystis hominis infection in long-term care facilities in Taiwan: prevalence and associated clinical factors.](#) Su FH, Chu FY, Li CY, Tang HF, Lin YS, Peng YJ, Su YM, Lee SD. Parasitol Res. 2009 Oct;105(4):1007-13. Epub 2009 Jun 2. PMID: 19488784
37. [High prevalence of subtype 4 among isolates of Blastocystis hominis from symptomatic patients of a health district of Valencia \(Spain\).](#) Domínguez-Márquez MV, Guna R, Muñoz C, Gómez-Muñoz MT, Borrás R. Parasitol Res. 2009 Oct;105(4):949-55. Epub 2009 May 27. PMID: 19471964
38. [Blastocystis: unravelling potential risk factors and clinical significance of a common but neglected parasite.](#) Stensvold CR, Lewis HC, Hammerum AM, Porsbo LJ, Nielsen SS, Olsen KE, Arendrup MC, Nielsen HV, Mølbak K. Epidemiol Infect. 2009 Nov;137(11):1655-63. Epub 2009 Apr 27. PMID: 19393117
39. [Elevated levels of urinary hydrogen peroxide, advanced oxidative protein product \(AOPP\) and malondialdehyde in humans infected with intestinal parasites.](#) Chandramathi S, Suresh K,

This document is **Hyperlinked**  
Just click on any heading to see the Pubmed abstract

Anita ZB, Kuppusamy UR. Parasitology. 2009 Mar;136(3):359-63. Epub 2009 Jan 21. PMID: 19154644

40. [Oh my aching gut: irritable bowel syndrome, Blastocystis, and asymptomatic infection.](#) Boorom KF, Smith H, Nimri L, Viscogliosi E, Spanakos G, Parkar U, Li LH, Zhou XN, Ok UZ, Leelayoova S, Jones MS. Parasit Vectors. 2008 Oct 21;1(1):40. PMID: 18937874 [PubMed - in process] **Free PMC Article**
41. [Association of Blastocystis subtype 3 and 1 with patients from an Oregon community presenting with chronic gastrointestinal illness.](#) Jones MS, Whipps CM, Ganac RD, Hudson NR, Boorom K. Parasitol Res. 2009 Jan;104(2):341-5. Epub 2008 Oct 16. Erratum in: Parasitol Res. 2009 Jan;104(2):491. Boroom, Kenneth [corrected to Boorom, Kenneth]. PMID: 18923844
42. [Protein profile and morphometry of cultured human Blastocystis hominis from children with gastroenteritis and healthy ones.](#) Hegazy MM, Maklouf LM, El Hamshary EM, Dawoud HA, Eida AM. J Egypt Soc Parasitol. 2008 Aug;38(2):453-64. PMID: 18853619
43. [Blastocystosis: an emerging or re-emerging potential zoonosis?](#) Vassalos CM, Papadopoulou C, Vakalis NC. Vet Ital. 2008 Oct-Dec;44(4):679-84. PMID: 20411495 [PubMed] **Free Article**
44. [Phenotypic and genotypic characterisation of Blastocystis hominis isolates implicates subtype 3 as a subtype with pathogenic potential.](#) Tan TC, Suresh KG, Smith HV. Parasitol Res. 2008 Dec;104(1):85-93. Epub 2008 Sep 16. PMID: 18795333
45. [A possible link between subtype 2 and asymptomatic infections of Blastocystis hominis.](#) Dogruman-AI F, Dagci H, Yoshikawa H, Kurt O, Demirel M. Parasitol Res. 2008 Aug;103(3):685-9. Epub 2008 Jun 5. PMID: 18523804
46. [Is Blastocystis hominis a new etiologic factor or a coincidence in iron deficiency anemia?](#) Yavasoglu I, Kadikoylu G, Uysal H, Ertug S, Bolaman Z. Eur J Haematol. 2008 Jul;81(1):47-50. Epub 2008 Apr 4. PMID: 18397391
47. [Symptomatic infection with Blastocystis sp. subtype 8 successfully treated with trimethoprim-sulfamethoxazole.](#) Stensvold CR, Arendrup MC, Nielsen HV, Bada A, Thorsen S. Ann Trop Med Parasitol. 2008 Apr;102(3):271-4. No abstract available. PMID: 18348782
48. [Molecular epidemiology of Blastocystis infections in Turkey.](#) Ozyurt M, Kurt O, Mølbak K, Nielsen HV, Haznedaroglu T, Stensvold CR. Parasitol Int. 2008 Sep;57(3):300-6. Epub 2008 Feb 13. PMID: 18337161

This document is **Hyperlinked**  
Just click on any heading to see the Pubmed abstract

49. [Characteristics of Blastocystis hominis infection in a Turkish university hospital.](#) Ozçakir O, Güreser S, Ergüven S, Yılmaz YA, Topaloğlu R, Haşçelik G. *Turkiye Parazitol Derg.* 2007;31(4):277-82. PMID: 18224616 **Free Article**
50. [Pathophysiological variability of different genotypes of human Blastocystis hominis Egyptian isolates in experimentally infected rats.](#) Hussein EM, Hussein AM, Eida MM, Atwa MM. *Parasitol Res.* 2008 Apr;102(5):853-60. Epub 2008 Jan 11. PMID: 18193282
51. [Acute urticaria associated with amoeboid forms of Blastocystis sp. subtype 3.](#) Katsarou-Katsari A, Vassalos CM, Tzanetou K, Spanakos G, Papadopoulou C, Vakalis N. *Acta Derm Venereol.* 2008;88(1):80-1. No abstract available. PMID: 18176765 **Free Article**
52. [Blastocystis ratti contains cysteine proteases that mediate interleukin-8 response from human intestinal epithelial cells in an NF-kappaB-dependent manner.](#) Puthia MK, Lu J, Tan KS. *Eukaryot Cell.* 2008 Mar;7(3):435-43. Epub 2007 Dec 21. PMID: 18156286 **Free PMC Article**
53. [\[Dot enzyme-linked immunosorbent assay for detection of serum antibody to Blastocystis hominis in humans\].](#) Su SL, Yan YM, Liao H, Chen GF, Zhang RQ, Xie QJ, Le X, Hu YQ, Zeng XY, Lan HY, Xie RL, Huang Z. *Zhongguo Ji Sheng Chong Xue Yu Ji Sheng Chong Bing Za Zhi.* 2007 Jun;25(3):256-8. Chinese. PMID: 18038792
54. [Pathogenicity of Blastocystis hominis, a clinical reevaluation.](#) Kaya S, Cetin ES, Aridoğan BC, Arikian S, Demirci M. *Turkiye Parazitol Derg.* 2007;31(3):184-7. PMID: 17918055 **Free Article**
55. [\[Chronic angioedema and blastocystis hominis infection\].](#) Micheloud D, Jensen J, Fernandez-Cruz E, Carbone J. *Rev Gastroenterol Peru.* 2007 Apr-Jun;27(2):191-3. Spanish. PMID: 17712397
56. [\[A case of infant infected by Blastocystis hominis\].](#) Liu DY, Lu ZC, Yun X. *Zhongguo Ji Sheng Chong Xue Yu Ji Sheng Chong Bing Za Zhi.* 2006 Dec;24(6):432. Chinese. No abstract available. PMID: 17366972
57. [\[Study on the biological characteristic of Blastocystis hominis: morphology, mode of reproduction and the relation to bacteria\].](#) Qiao JY, Zhang X, Wei ZC, Yang JH, Li YQ, Zhang R. *Wei Sheng Yan Jiu.* 2006 Nov;35(6):739-42. Chinese. PMID: 17290755
58. [Blastocystis hominis colitis in a haemophilic patient as a cause of lower gastrointestinal bleeding.](#) Lucía JF, Aguilar C, Betran A. *Haemophilia.* 2007 Mar;13(2):224-5. No abstract available. PMID: 17286783
59. [The effect of Blastocystis hominis on the growth status of children.](#) Ertug S, Karakas S, Okyay P, Ergin F, Oncu S. *Med Sci Monit.* 2007 Jan;13(1):CR40-3. Epub 2006 Dec 18. PMID:

This document is **Hyperlinked**  
Just click on any heading to see the Pubmed abstract

17179909

60. [\[Clinical symptoms in cases caused by entamoeba coli and blastocystis hominis.\]](#) Kaya S, Cetin ES, Akcam Z, Kesbic H, Demirci M. Turkiye Parazitolo Derg. 2005;29(4):229-231. Turkish. PMID: 17124674 [PubMed - as supplied by publisher] **Free Article**
61. [\[Impact of blastocystis hominis infection on ultrastructure of intestinal mucosa in mice\]](#). Zhang HW, Li W, Yan QY, He LJ, Su YP. Zhongguo Ji Sheng Chong Xue Yu Ji Sheng Chong Bing Za Zhi. 2006 Jun;24(3):187-91. Chinese. PMID: 17094618
62. [Irritable bowel syndrome: a review on the role of intestinal protozoa and the importance of their detection and diagnosis.](#) Stark D, van Hal S, Marriott D, Ellis J, Harkness J. Int J Parasitol. 2007 Jan;37(1):11-20. Epub 2006 Oct 12. Review. PMID: 17070814
63. [\[Blastocystosis or Zierdt-Garavelli disease: a clinical pathway\]](#). Garavelli PL. Recenti Prog Med. 2006 Jul-Aug;97(7-8):397-400. Italian. PMID: 16913176
64. [Blastocystis hominis--an emerging and imitating cause of acute abdomen in children.](#) Andiran N, Acikgoz ZC, Turkay S, Andiran F. J Pediatr Surg. 2006 Aug;41(8):1489-91. PMID: 16863863
65. [Blastocystis ratti induces contact-independent apoptosis, F-actin rearrangement, and barrier function disruption in IEC-6 cells.](#) Puthia MK, Sio SW, Lu J, Tan KS. Infect Immun. 2006 Jul;74(7):4114-23. PMID: 16790785 **Free PMC Article**
66. [Chronic urticaria due to Blastocystis hominis.](#) Gupta R, Parsi K. Australas J Dermatol. 2006 May;47(2):117-9. PMID: 16637808
67. [PCR fingerprinting of Blastocystis isolated from symptomatic and asymptomatic human hosts.](#) Tan TC, Suresh KG, Thong KL, Smith HV. Parasitol Res. 2006 Sep;99(4):459-65. Epub 2006 Apr 21. PMID: 16628457
68. [\[Epidemiologic and laboratory assessments of etiologic implications of Blastocystis hominis in gastrointestinal diseases\]](#). Luca M, Ivan A, Goția S, Cașotă RE, Danciu V. Rev Med Chir Soc Med Nat Iasi. 2005 Jan-Mar;109(1):140-3. Romanian. PMID: 16607843
69. [\[Experimental infection of mice with Blastocystis hominis\]](#). Yao FR, Qiao JY, Zhao Y, Zhang X, Yang JH, Li XQ. Zhongguo Ji Sheng Chong Xue Yu Ji Sheng Chong Bing Za Zhi. 2005 Dec 30;23(6):444-8. Chinese. PMID: 16566218
70. [Predominance of amoeboid forms of Blastocystis hominis in isolates from symptomatic patients.](#) Tan TC, Suresh KG. Parasitol Res. 2006 Feb;98(3):189-93. Epub 2005 Dec 2. PMID:

This document is **Hyperlinked**  
Just click on any heading to see the Pubmed abstract

16323025

71. [The association of Blastocystis hominis and Endolimax nana with diarrheal stools in Zambian school-age children.](#) Graczyk TK, Shiff CK, Tamang L, Munsaka F, Beitin AM, Moss WJ. Parasitol Res. 2005 Dec;98(1):38-43. Epub 2005 Oct 25. PMID: 16249910
72. [Effect of nitazoxanide in persistent diarrhea and enteritis associated with Blastocystis hominis.](#) Rossignol JF, Kabil SM, Said M, Samir H, Younis AM. Clin Gastroenterol Hepatol. 2005 Oct;3(10):987-91. PMID: 16234044
73. [Remission of delayed pressure urticaria after eradication of Blastocystis hominis.](#) Cassano N, Scoppio BM, Loviglio MC, Vena GA. Acta Derm Venereol. 2005;85(4):357-8. No abstract available. PMID: 16191864 **Free Article**
74. [Blastocystis hominis among symptomatic and asymptomatic individuals in Talkha Center, Dakahlia Governorate, Egypt.](#) El-Shazly AM, Abdel-Magied AA, El-Beshbishi SN, El-Nahas HA, Fouad MA, Monib MS. J Egypt Soc Parasitol. 2005 Aug;35(2):653-66. PMID: 16083074
75. [Blastocystis hominis and the evaluation of efficacy of metronidazole and trimethoprim/sulfamethoxazole.](#) Moghaddam DD, Ghadirian E, Azami M. Parasitol Res. 2005 Jun;96(4):273-5. Epub 2005 May 25. PMID: 15915364
76. [Chronic urticaria and blastocystis hominis infection: a case report.](#) Pasqui AL, Savini E, Saletti M, Guzzo C, Puccetti L, Auteri A. Eur Rev Med Pharmacol Sci. 2004 May-Jun;8(3):117-20. PMID: 15368795
77. [Cutaneous lesions in Blastocystis hominis infection.](#) Valsecchi R, Leghissa P, Greco V. Acta Derm Venereol. 2004;84(4):322-3. No abstract available. PMID: 15339085
78. [Evidence of waterborne transmission of Blastocystis hominis.](#) Leelayoova S, Rangsinsin R, Taamasri P, Naaglor T, Thathaisong U, Mungthin M. Am J Trop Med Hyg. 2004 Jun;70(6):658-62. PMID: 15211009 **Free Article**
79. [Blastocystis hominis as a cause of hypoalbuminemia and anasarca.](#) Nassir E, Awad J, Abel AB, Khoury J, Shay M, Lejbkowitz F. Eur J Clin Microbiol Infect Dis. 2004 May;23(5):399-402. Epub 2004 Apr 27. PMID: 15112065
80. [Irritable bowel syndrome: in search of an etiology: role of Blastocystis hominis.](#) Yakoob J, Jafri W, Jafri N, Khan R, Islam M, Beg MA, Zaman V. Am J Trop Med Hyg. 2004 Apr;70(4):383-5. PMID: 15100450 **Free Article**

This document is **Hyperlinked**  
Just click on any heading to see the Pubmed abstract

81. [Serum zinc and magnesium levels in patients with blastocystosis.](#) Kilic E, Yazar S, Saraymen R. Biol Trace Elem Res. 2004 Apr;98(1):21-6. PMID: 15051897
82. [Prevalence of intestinal parasites among individuals with allergic skin diseases.](#) Giacometti A, Cirioni O, Antonicelli L, D'Amato G, Silvestri C, Del Prete MS, Scalise G. J Parasitol. 2003 Jun;89(3):490-2. PMID: 12880246
83. [\[Human blastocystosis: prospective study symptomatology and associated epidemiological factors\].](#) Barahona Rondón L, Maguiña Vargas C, Náquira Velarde C, Terashima I A, Tello R. Rev Gastroenterol Peru. 2003 Jan-Mar;23(1):29-35. Spanish. PMID: 12768212
84. [Hematological effects of Blastocystis hominis infection in male foreign workers in Taiwan.](#) Cheng HS, Guo YL, Shin JW. Parasitol Res. 2003 May;90(1):48-51. Epub 2003 Jan 30. PMID: 12743803
85. [Secretory and humoral antibody responses to Blastocystis hominis in symptomatic and asymptomatic human infections.](#) Mahmoud MS, Saleh WA. J Egypt Soc Parasitol. 2003 Apr;33(1):13-30. PMID: 12739797
86. [A placebo-controlled treatment trial of Blastocystis hominis infection with metronidazole.](#) Nigro L, Larocca L, Massarelli L, Patamia I, Minniti S, Palermo F, Cacopardo B. J Travel Med. 2003 Mar-Apr;10(2):128-30. PMID: 12650658
87. [Epidemiological survey of Blastocystis hominis in Huainan City, Anhui Province, China.](#) Wang KX, Li CP, Wang J, Cui YB. World J Gastroenterol. 2002 Oct;8(5):928-32. PMID: 12378644  
**Free Article**
88. [Seasonal prevalence of intestinal parasites in the United States during 2000.](#) Amin OM. Am J Trop Med Hyg. 2002 Jun;66(6):799-803. PMID: 12224595 **Free Article**
89. [\[Infections and diseases after travelling\].](#) Harms G, Dörner F, Bienzle U, Stark K. Dtsch Med Wochenschr. 2002 Aug 23;127(34-35):1748-53. German. PMID: 12192633
90. [\[Blastocystis hominis and blastocystosis \(Zierdt-Garavelli disease\)\].](#) Sangiorgi M. Ann Ital Med Int. 2002 Apr-Jun;17(2):131-2. Italian. No abstract available. PMID: 12154808
91. [\[50-year-old patient returning from Hawaii with changed stool habits. Blastocystis hominis\].](#) Estlinbaum T, Hatz Ch. Praxis (Bern 1994). 2002 May 22;91(21):936-8. German. No abstract available. PMID: 12085551
92. [Hypersensitivity to non-steroidal anti-inflammatory drugs and chronic urticaria cured by treatment of Blastocystis hominis infection.](#) Biedermann T, Hartmann K, Sing A, Przybilla B. Br

This document is **Hyperlinked**  
Just click on any heading to see the Pubmed abstract

J Dermatol. 2002 Jun;146(6):1113-4. No abstract available. PMID: 12072100

93. [Palmoplantar pruritus subsiding after Blastocystis hominis eradication.](#) Kick G, Rueff F, Przybilla B. Acta Derm Venereol. 2002;82(1):60. No abstract available. PMID: 12013204
94. [Blastocystis hominis modulates immune responses and cytokine release in colonic epithelial cells.](#) Long HY, Handschack A, König W, Ambrosch A. Parasitol Res. 2001 Dec;87(12):1029-30. PMID: 11763434
95. [Protozoon infections and intestinal permeability.](#) Dagci H, Ustun S, Taner MS, Ersoz G, Karacasu F, Budak S. Acta Trop. 2002 Jan;81(1):1-5. PMID: 11755426
96. [Ribodemes of Blastocystis hominis isolated in Japan.](#) Kaneda Y, Horiki N, Cheng XJ, Fujita Y, Maruyama M, Tachibana H. Am J Trop Med Hyg. 2001 Oct;65(4):393-6. PMID: 11693890  
**Free Article**
97. [Morphology, histochemistry and infectivity of Blastocystis hominis cyst.](#) Abou El Naga IF, Negm AY. J Egypt Soc Parasitol. 2001 Aug;31(2):627-35. PMID: 11478461
98. [Blastocystis hominis: a new pathogen in day-care centres?](#) Koutsavlis AT, Valiquette L, Allard R, Soto J. Can Commun Dis Rep. 2001 May 1;27(9):76-84. English, French. No abstract available. PMID: 11381629 **Free Article**
99. [Effect of trimethoprim-sulfamethaxazole in Blastocystis hominis infection.](#) Ok UZ, Girginkardeşler N, Balcioğlu C, Ertan P, Pirildar T, Kilimcioğlu AA. Am J Gastroenterol. 1999 Nov;94(11):3245-7. PMID: 10566723
100. [\[Blastocystis hominis: epidemiological and clinical remarks from more than 3,500 stool examinations\].](#) Pinel C, Réjasse C, Picot S, Brenier-Pinchart MP, Grillot R, Ambroise-Thomas P. Ann Biol Clin (Paris). 1999 Sep-Oct;57(5):601-4. French. No abstract available. PMID: 10518063 **Free Article**
101. [Irritable bowel syndrome in patients with Blastocystis hominis infection.](#) Giacometti A, Cirioni O, Fiorentini A, Fortuna M, Scalise G. Eur J Clin Microbiol Infect Dis. 1999 Jun;18(6):436-9. PMID: 10442423
102. [\[Blastocystis hominis in patients at the Ruiz y Paez University Hospital from Bolivar City, Venezuela\].](#) Devera R, Azacon B, Jiménez M. Bol Chil Parasitol. 1998 Jul-Dec;53(3-4):65-70. Spanish. PMID: 10413881
103. [Soluble-protein and antigenic heterogeneity in axenic Blastocystis hominis isolates: pathogenic implications.](#) Lanuza MD, Carbajal JA, Villar J, Mir A, Borrás R. Parasitol Res. 1999

This document is **Hyperlinked**  
Just click on any heading to see the Pubmed abstract

Feb;85(2):93-7. PMID: 9934956

104. [Cytopathic effect of Blastocystis hominis after intramuscular inoculation into laboratory mice.](#) Moe KT, Singh M, Gopalakrishnakone P, Ho LC, Tan SW, Chen XQ, Yap EH. Parasitol Res. 1998 Jun;84(6):450-4. PMID: 9660133
105. [Blastocystosis in preschool children from bolivar city, venezuela](#) Devera RA, Velasquez VJ, Vasquez MJ. Cad Saude Publica. 1998 Apr;14(2):401-7. Spanish. PMID: 9658225 [PubMed - as supplied by publisher]
106. [Intestinal parasites among food-handlers in Qualyobia Governorate, with reference to the pathogenic parasite blastocystis hominis.](#) Sadek Y, el-Fakahany AF, Lashin AH, el-Salam FA. J Egypt Soc Parasitol. 1997 Aug;27(2):471-8. PMID: 9257986
107. [\[Prevalence of Blastocystis hominis infection in schoolchildren from Bolivar City, Venezuela\].](#) Devera RA, Punos GN, Velásquez VJ, Catanese JA, Meneses RG. Bol Chil Parasitol. 1997 Jul-Dec;52(3-4):77-81. Spanish. PMID: 9640685
108. [The role of Blastocystis hominis as a possible intestinal pathogen in travellers.](#) Jelinek T, Peyerl G, Löscher T, von Sonnenburg F, Nothdurft HD. J Infect. 1997 Jul;35(1):63-6. PMID: 9279726
109. [\[Clinical significance of Blastocystis hominis infection: epidemiologic study\].](#) Carbajal JA, Villar J, Lanuza MD, Esteban JG, Muñoz C, Borrás R. Med Clin (Barc). 1997 Apr 26;108(16):608-12. Spanish. PMID: 9303956
110. [Significantly increased IgG2 subclass antibody levels to Blastocystis hominis in patients with irritable bowel syndrome.](#) Hussain R, Jaferi W, Zuberi S, Baqai R, Abrar N, Ahmed A, Zaman V. Am J Trop Med Hyg. 1997 Mar;56(3):301-6. PMID: 9129532
111. [\[Parasitosis in an adult population with chronic gastrointestinal disorders\].](#) Zdero M, Cabrera G, Ponce de León P, Nocito I, Echenique C. Acta Gastroenterol Latinoam. 1997;27(2):67-73. Spanish. PMID: 9412130
112. [Experimental Blastocystis hominis infection in laboratory mice.](#) Moe KT, Singh M, Howe J, Ho LC, Tan SW, Chen XQ, Ng GC, Yap EH. Parasitol Res. 1997;83(4):319-25. PMID: 9134552
113. [\[Blastocystis hominis infection: a case report\].](#) Antonelli F, Cantelli L, De Maddi F, Lamba M. Minerva Pediatr. 1996 Dec;48(12):571-3. Italian. PMID: 9091775

This document is **Hyperlinked**  
Just click on any heading to see the Pubmed abstract

114. [Hemorrhagic proctosigmoiditis and Blastocystis hominis.](#) Yarze JC. Ann Intern Med. 1996 Nov 15;125(10):860-1. No abstract available. PMID: 8929001
115. [\[Case report of colitis associated with Blastocystis hominis infection\].](#) Horiki N, Maruyama M, Itoh T, Fujita Y, Yonekura T, Minato Y, Kaneda Y. Nihon Shokakibyō Gakkai Zasshi. 1996 Sep;93(9):655-60. Review. Japanese. No abstract available. PMID: 8905973
116. [Severe Blastocystis hominis in an elderly man.](#) Levy Y, George J, Shoenfeld Y. J Infect. 1996 Jul;33(1):57-9. PMID: 8842998
117. [Serum antibody detected by fluorescent antibody test in patients with symptomatic Blastocystis hominis infection.](#) Garavelli PL, Zierdt CH, Fleisher TA, Liss H, Nagy B. Recenti Prog Med. 1995 Oct;86(10):398-400. No abstract available. PMID: 7501905
118. [Enzyme-linked immunosorbent assay for detection of serum antibody to Blastocystis hominis in symptomatic infections.](#) Zierdt CH, Zierdt WS, Nagy B. J Parasitol. 1995 Feb;81(1):127-9. PMID: 7876972
119. [Intestinal colonization of symptomatic and asymptomatic schoolchildren with Blastocystis hominis.](#) Nimri L, Batchoun R. J Clin Microbiol. 1994 Nov;32(11):2865-6. PMID: 7852590 **Free PMC Article**
120. [Invasive Blastocystis hominis infection in a child.](#) al-Tawil YS, Gilger MA, Gopalakrishna GS, Langston C, Bommer KE. Arch Pediatr Adolesc Med. 1994 Aug;148(8):882-5. No abstract available. PMID: 8044274
121. [Blastocystis hominis infection and intestinal injury.](#) Zuckerman MJ, Watts MT, Ho H, Meriano FV. Am J Med Sci. 1994 Aug;308(2):96-101. PMID: 8042662
122. [Incidence of Blastocystis hominis in patients with diarrhoea.](#) Logar J, Andlovic A, Poljsak-Prijatelj M. J Infect. 1994 Mar;28(2):151-4. PMID: 8034994
123. [\[Blastocystis hominis as a rare arthritogenic pathogen. A case report\].](#) Krüger K, Kamilli I, Schattenkirchner M. Z Rheumatol. 1994 Mar-Apr;53(2):83-5. German. PMID: 8023590
124. [Evidence of an epidemic of Blastocystis hominis infections in preschool children in northern Jordan.](#) Nimri LF. J Clin Microbiol. 1993 Oct;31(10):2706-8. PMID: 8253970 **Free PMC Article**
125. [Urticaria by Blastocystis hominis. Successful treatment with paromomycin.](#) Armentia A, Méndez J, Gómez A, Sanchís E, Fernández A, de la Fuente R, Sánchez P. Allergol Immunopathol (Madr). 1993 Jul-Aug;21(4):149-51. PMID: 8237719

This document is **Hyperlinked**  
Just click on any heading to see the Pubmed abstract

126. [Antibody response to Blastocystis hominis infections.](#) Zierdt CH, Nagy B. Ann Intern Med. 1993 Jun 15;118(12):985-6. No abstract available. PMID: 8489119
127. [Neonatal Blastocystis hominis diarrhea.](#) Galantowicz BB, Illueca MD, Levy J, Rayburn JL, Weinstock DJ. Pediatr Infect Dis J. 1993 Apr;12(4):345-7. No abstract available. PMID: 8483630
128. [Prevalence and characteristics of Blastocystis hominis infection in children.](#) O'Gorman MA, Orenstein SR, Proujansky R, Wadowsky RM, Putnam PE, Kocoshis SA. Clin Pediatr (Phila). 1993 Feb;32(2):91-6. PMID: 8432086
129. [\[Blastocystis hominis and abdominal pain in childhood\].](#) Fleta Zaragozano J, Clavel Parrilla A, Castillo García FJ, Bueno Lozano M, Sarría Chueca A. An Esp Pediatr. 1993 Jan;38(1):13-6. Review. Spanish. PMID: 8439071
130. [Blastocystis hominis and blastocystosis \(Zierdt-Garavelli disease\).](#) Garavelli PL, Libanore M. Ital J Gastroenterol. 1993 Jan;25(1):33-6. Review. No abstract available. PMID: 8428021
131. [Epidemiology and clinical significance of Blastocystis hominis in different population groups in Salamanca \(Spain\).](#) Martín-Sánchez AM, Canut-Blasco A, Rodríguez-Hernández J, Montes-Martínez I, García-Rodríguez JA. Eur J Epidemiol. 1992 Jul;8(4):553-9. PMID: 1397225
132. [Varying incidence of Blastocystis hominis in cultures from faeces of patients with diarrhoea and from healthy persons.](#) Kukoschke KG, Müller HE. Zentralbl Bakteriol. 1992 Jun;277(1):112-8. PMID: 1520961
133. [Longitudinal study of young children in Kenya: intestinal parasitic infection with special reference to Giardia lamblia, its prevalence, incidence and duration, and its association with diarrhoea and with other parasites.](#) Chungue RN, Nagelkerke N, Karumba PN, Kaleli N, Wamwea M, Mutiso N, Andala EO, Gachoya J, Kiarie R, Kinoti SN. Acta Trop. 1991 Nov;50(1):39-49. PMID: 1686143
134. [Clinical report of Blastocystis hominis infection in children.](#) Zaki M, Daoud AS, Pugh RN, al-Ali F, al-Mutairi G, al-Saleh Q. J Trop Med Hyg. 1991 Apr;94(2):118-22. PMID: 2023289
135. [\[Importance of the diagnosis of Blastocystis hominis in the parasitological examination of feces\].](#) Ponce de León P, Svetaz MJ, Zdero M. Rev Latinoam Microbiol. 1991 Apr-Sep;33(2-3):159-64. Spanish. PMID: 1670481
136. [Intestinal parasites in a rural community in Kenya: cross-sectional surveys with emphasis on prevalence, incidence, duration of infection, and polyparasitism.](#) Chungue RN, Karumba PN, Nagelkerke N, Kaleli N, Wamwea M, Mutiso N, Andala EO, Kinoti SN. East Afr Med J. 1991

This document is **Hyperlinked**  
Just click on any heading to see the Pubmed abstract

Feb;68(2):112-23. PMID: 2040230

137. [Reactive arthritis from Blastocystis hominis.](#) Lakhanpal S, Cohen SB, Fleischmann RM. Arthritis Rheum. 1991 Feb;34(2):251-3. No abstract available. PMID: 1994931
138. [The therapy of blastocystosis.](#) Garavelli PL. J Chemother. 1991 Jan;3 Suppl 1:245-6. PMID: 12041778
139. [Blastocystis hominis--past and future.](#) Zierdt CH. Clin Microbiol Rev. 1991 Jan;4(1):61-79. Review. PMID: 2004348 **Free PMC Article**
140. [Blastocystis hominis may be a potential cause of intestinal disease.](#) Telalbasic S, Pikula ZP, Kapidzic M. Scand J Infect Dis. 1991;23(3):389-90. PMID: 1882204
141. [Blastocystis hominis infection: signs and symptoms in patients at Wilford Hall Medical Center.](#) Wilson KW, Winget D, Wilks S. Mil Med. 1990 Sep;155(9):394-6. PMID: 2120622
142. [\[Blastocystis hominis infection frequency: a year of study\].](#) Castrillo de Tirado A, González Mata AJ, Tirado Espinoza E. G E N. 1990 Jul-Sep;44(3):217-20. Spanish. PMID: 2152310
143. [\[Blastocystis hominis in feces. An assessment of 56 cases\].](#) Krech T, Nguyen XM, Spicher H. Schweiz Med Wochenschr. 1990 May 19;120(20):742-4. German. PMID: 2349459
144. [Blastocystis hominis in two children of one family.](#) Bratt DE, Tikasingh ES. West Indian Med J. 1990 Mar;39(1):57-8. PMID: 2333700
145. [Epidemiology and pathogenicity of Blastocystis hominis.](#) Doyle PW, Helgason MM, Mathias RG, Proctor EM. J Clin Microbiol. 1990 Jan;28(1):116-21. PMID: 2298869 **Free PMC Article**
146. [Family outbreak of Blastocystis hominis associated gastroenteritis.](#) Guglielmetti P, Cellesi C, Figura N, Rossolini A. Lancet. 1989 Dec 9;2(8676):1394. No abstract available. PMID: 2574330
147. [Clinical significance of Blastocystis hominis.](#) Qadri SM, al-Okaili GA, al-Dayel F. J Clin Microbiol. 1989 Nov;27(11):2407-9. PMID: 2808664 **Free PMC Article**
148. [Blastocystis hominis--a potential intestinal pathogen.](#) Babb RR, Wagener S. West J Med. 1989 Nov;151(5):518-9. PMID: 2603418 **Free PMC Article**
149. [Terminal ileitis associated with Blastocystis hominis infection.](#) Tsang TK, Levin BS, Morse SR. Am J Gastroenterol. 1989 Jul;84(7):798-9. PMID: 2741890

This document is **Hyperlinked**  
Just click on any heading to see the Pubmed abstract

150. [\[Observations on 4 atypical cases of blastocystosis\]](#). Muntean E, Boceat T. Rev Ig Bacteriol Virusol Parazitol Epidemiol Pneumoftiziol Bacteriol Virusol Parazitol Epidemiol. 1989 Jul-Sep;34(3):285-8. Romanian. PMID: 2617001
151. [\[Blastocystis hominis, a parasitic cause of diarrhea\]](#). Nguyen XM, Krech T. Schweiz Med Wochenschr. 1989 Apr 15;119(15):457-60. German. PMID: 2717900
152. [Presumptive evidence for Blastocystis hominis as a cause of colitis](#). Russo AR, Stone SL, Taplin ME, Snapper HJ, Doern GV. Arch Intern Med. 1988 May;148(5):1064. PMID: 3365077
153. [Epidemiology and clinical features associated with Blastocystis hominis infection](#). Kain KC, Noble MA, Freeman HJ, Barteluk RL. Diagn Microbiol Infect Dis. 1987 Dec;8(4):235-44. PMID: 3449317
154. [Diarrhea due to Blastocystis hominis: an old organism revisited](#). Diaczok BJ, Rival J. South Med J. 1987 Jul;80(7):931-2. PMID: 3603119
155. [Blastocystis hominis: evidence for human pathogenicity and effectiveness of metronidazole therapy](#). Guirges SY, Al-Waili NS. Clin Exp Pharmacol Physiol. 1987 Apr;14(4):333-5. PMID: 3665198
156. [\[A case from practice \(66\). Patient: E.K., born Oct. 10, 1948, housewife \(Blastocystis hominis infection\)\]](#). Binz P. Schweiz Rundsch Med Prax. 1986 Nov 4;75(45):1367-8. German. No abstract available. PMID: 3787022
157. [Association of Blastocystis hominis with signs and symptoms of human disease](#). Sheehan DJ, Raucher BG, McKittrick JC. J Clin Microbiol. 1986 Oct;24(4):548-50. PMID: 3771743

This document is **Hyperlinked**  
Just click on any heading to see the Pubmed abstract

## Section 2: Studies Identifying Blastocystis as Non-Pathogenic or Uncorrelated With Symptoms (17 studies)

1. [Intestinal protozoan infections in relation to nutritional status and gastrointestinal morbidity in Colombian school children.](#) Boeke CE, Mora-Plazas M, Forero Y, Villamor E. J Trop Pediatr. 2010 Oct;56(5):299-306. Epub 2010 Jan 8. PMID: 20061400
2. [No correlation between clinical symptoms and Blastocystis hominis in immunocompetent individuals.](#) Leder K, Hellard ME, Sinclair MI, Fairley CK, Wolfe R. J Gastroenterol Hepatol. 2005 Sep;20(9):1390-4. PMID: 16105126
3. [Clinical characteristics and endoscopic findings associated with Blastocystis hominis in healthy adults.](#) Chen TL, Chan CC, Chen HP, Fung CP, Lin CP, Chan WL, Liu CY. Am J Trop Med Hyg. 2003 Aug;69(2):213-6. PMID: 13677378 **Free Article**
4. [Enteropathogens in adult patients with diarrhea and healthy control subjects: a 1-year prospective study in a Swedish clinic for infectious diseases.](#) Svenungsson B, Lagergren A, Ekwall E, Evengård B, Hedlund KO, Kärnell A, Löfdahl S, Svensson L, Weintraub A. Clin Infect Dis. 2000 May;30(5):770-8. Epub 2000 May 18. PMID: 10816147 **Free Article**
5. [Prevalence and clinical relevance of Blastocystis hominis in diverse patient cohorts.](#) Cirioni O, Giacometti A, Drenaggi D, Ancarani F, Scalise G. Eur J Epidemiol. 1999 Apr;15(4):389-93. PMID: 10414382
6. [Epidemiologic survey of Blastocystis hominis infection in Japan.](#) Horiki N, Maruyama M, Fujita Y, Yonekura T, Minato S, Kaneda Y. Am J Trop Med Hyg. 1997 Apr;56(4):370-4. PMID: 9158042
7. [\[Blastocystis hominis: a common commensal in the colon. Study of prevalence in different populations of Paris\].](#) Junod C. Presse Med. 1995 Nov 25;24(36):1684-8. French. PMID: 8545396
8. [Is Blastocystis hominis a cause of diarrhea in travelers? A prospective controlled study in Nepal.](#) Shlim DR, Hoge CW, Rajah R, Rabold JG, Echeverria P. Clin Infect Dis. 1995 Jul;21(1):97-101. PMID: 7578767
9. [Blastocystis hominis: prevalence in asymptomatic versus symptomatic hosts.](#) Udkow MP, Markell EK. J Infect Dis. 1993 Jul;168(1):242-4. PMID: 8515120
10. [Blastocystis hominis in inflammatory bowel disease.](#) Nagler J, Brown M, Soave R. J Clin Gastroenterol. 1993 Mar;16(2):109-12. PMID: 8463612

This document is **Hyperlinked**  
Just click on any heading to see the Pubmed abstract

11. [Blastocystis hominis: epidemiology and natural history.](#) Senay H, MacPherson D. J Infect Dis. 1990 Oct;162(4):987-90. PMID: 2401797
12. [Frequency of recovery of Blastocystis hominis in clinical practice.](#) Zuckerman MJ, Ho H, Hooper L, Anderson B, Polly SM. J Clin Gastroenterol. 1990 Oct;12(5):525-32. PMID: 2229995
13. [\[Etiology of diarrheal diseases in immunocompetent and HIV-positive patients\].](#) Steinmann E, di Gallo A, Rüttimann S, Loosli J, Dubach UC. Schweiz Med Wochenschr. 1990 Sep 1;120(35):1253-6. German. PMID: 2218447
14. [Questionable clinical significance of Blastocystis hominis infection.](#) Sun T, Katz S, Tanenbaum B, Schenone C. Am J Gastroenterol. 1989 Dec;84(12):1543-7. PMID: 2596457
15. [Blastocystis hominis: an organism in search of a disease.](#) Miller RA, Minshew BH. Rev Infect Dis. 1988 Sep-Oct;10(5):930-8. Review. PMID: 3055191
16. [Lack of serum immune response to Blastocystis hominis.](#) Chen JL, Vaudry WL, Kowalewska K, Wenman WM. Lancet. 1987 Oct 31;2(8566):1021. No abstract available. PMID: 2889924
17. [Blastocystis hominis: pathogen or fellow traveler?](#) Markell EK, Udkow MP. Am J Trop Med Hyg. 1986 Sep;35(5):1023-6. PMID: 3766850

This document is **Hyperlinked**  
Just click on any heading to see the Pubmed abstract

## Section 2A: Studies Identifying Giardia and E. histolytica as Non-Pathogenic, Uncorrelated with Symptoms, or Not Requiring Treatment (37 studies)

1. [Infection by human immunodeficiency virus-1 is not a risk factor for amebiasis.](#) Hung CC, Sun HY, Chang SC. Am J Trop Med Hyg. 2006 Nov;75(5):775; author reply 775-6. No abstract available. PMID: 17123964
2. [Entamoeba histolytica cyst passers. Clinical profile and spontaneous eradication of infection.](#) Anand BS, Tuteja AK, Kaur M, Alam SM, Aggarwal DS, Mehta SP, Baveja UK. Dig Dis Sci. 1993 Oct;38(10):1825-30. PMID: 8404403
3. [Absence of an association between enteric parasites in the manifestations and pathogenesis of HIV enteropathy in gay men. The GI/HIV Study Group.](#) Church DL, Sutherland LR, Gill MJ, Visser ND, Kelly JK. Scand J Infect Dis. 1992;24(5):567-75. PMID: 1361241
4. [Outcome of untreated infection with Entamoeba histolytica in homosexual men with and without HIV antibody.](#) Allason-Jones E, Mindel A, Sargeaunt P, Katz D. BMJ. 1988 Sep 10;297(6649):654-7. PMID: 2902889
5. [Entamoeba histolytica as a commensal intestinal parasite in homosexual men.](#) Allason-Jones E, Mindel A, Sargeaunt P, Williams P. N Engl J Med. 1986 Aug 7;315(6):353-6. PMID: 2874484
6. [Intestinal protozoa in homosexual men of the San Francisco Bay area: prevalence and correlates of infection.](#) Markell EK, Havens RF, Kuritsubo RA, Wingerd J. Am J Trop Med Hyg. 1984 Mar;33(2):239-45. PMID: 6711741
7. [Intestinal protozoan infections: prevalence in the San Francisco Bay Area.](#) Markell EK, Kuritsubo RA. West J Med. 1981 Sep;135(3):188-90. PMID: 7340117
8. [Endemic Cryptosporidium and Giardia lamblia infections in a Thai orphanage.](#) Janoff EN, Mead PS, Mead JR, Echeverria P, Bodhidatta L, Bhaibulaya M, Sterling CR, Taylor DN. Am J Trop Med Hyg. 1990 Sep;43(3):248-56. PMID: 2221219
9. [Giardiasis: A review on assemblage distribution and epidemiology in India.](#) Laishram S, Kang G, Ajjampur SS. Indian J Gastroenterol. 2012 Feb 7. [Epub ahead of print] PMID: 22311296 [PubMed - as supplied by publisher]

This document is **Hyperlinked**  
Just click on any heading to see the Pubmed abstract

10. [Prevalence and risk factors for Giardia duodenalis infection among children: A case study in Portugal.](#) Júlio C, Vilarés A, Oleastro M, Ferreira I, Gomes S, Monteiro L, Nunes B, Tenreiro R, Angelo H. Parasit Vectors. 2012 Jan 27;5:22. PMID: 22284337 [PubMed - in process] [Free Article](#)
11. [How common is intestinal parasitism in HIV-infected patients in Malaysia?](#) Asma I, Johari S, Sim BL, Lim YA. Trop Biomed. 2011 Aug;28(2):400-10. PMID: 22041762 [PubMed - in process] [Free Article](#)
12. [High prevalences of infection with Giardia intestinalis genotype B among children in urban and rural areas of Argentina.](#) Molina N, Minvielle M, Grenóvero S, Salomón C, Basualdo J. Ann Trop Med Parasitol. 2011 Jun;105(4):299-309. doi: 10.1179/136485911X12987676649665. PMID: 21871166
13. [Human giardiasis in Serbia: asymptomatic vs symptomatic infection.](#) Nikolić A, Klun I, Bobić B, Ivović V, Vujanić M, Zivković T, Djurković-Djaković O. Parasite. 2011 May;18(2):197-201. Review. PMID: 21678797
14. [Protection against diarrhea associated with Giardia intestinalis Is lost with multi-nutrient supplementation: a study in Tanzanian children.](#) Veenemans J, Mank T, Ottenhof M, Baidjoe A, Mbugi EV, Demir AY, Wienders JP, Savelkoul HF, Verhoef H. PLoS Negl Trop Dis. 2011 Jun;5(6):e1158. Epub 2011 Jun 7. PMID: 21666789 Free PMC Article
15. [Case-control study of diarrheal disease etiology in a remote rural area in Western Thailand.](#) Bodhidatta L, McDaniel P, Sornsakrin S, Srijan A, Serichantalergs O, Mason CJ. Am J Trop Med Hyg. 2010 Nov;83(5):1106-9. PMID: 21036846 [Free PMC Article](#)
16. [Prevalences of Giardia lamblia and Cryptosporidium parvum infection in adults presenting with chronic diarrhoea.](#) Yakoob J, Abbas Z, Beg MA, Naz S, Khan R, Islam M, Jafri W. Ann Trop Med Parasitol. 2010 Sep;104(6):505-10. PMID: 20863439
17. [Prevalence of enteroparasites and genotyping of Giardia lamblia in Peruvian children.](#) Pérez Cordón G, Cordova Paz Soldan O, Vargas Vásquez F, Velasco Soto JR, Sempere Bordes L, Sánchez Moreno M, Rosales MJ. Parasitol Res. 2008 Jul;103(2):459-65. Epub 2008 May 11. PMID: 18470699
18. [Rapid reinfection by Giardia lamblia after treatment in a hyperendemic area: the case against treatment.](#) Saffar MJ, Qaffari J, Khalilian AR, Kosarian M. East Mediterr Health J. 2005 Jan-Mar;11(1-2):73-8. PMID: 16532674
19. [Does co-infection with Giardia lamblia modulate the clinical characteristics of enteric infections in young children?](#) Bilenko N, Levy A, Dagan R, Deckelbaum RJ, El-On Y, Fraser D. Eur J Epidemiol. 2004;19(9):877-83. PMID: 15499898

This document is **Hyperlinked**  
Just click on any heading to see the Pubmed abstract

20. [Effects of asymptomatic Giardia intestinalis infection on carbohydrate absorption in well-nourished Mexican children.](#) Moya-Camarena SY, Sotelo N, Valencia ME. Am J Trop Med Hyg. 2002 Mar;66(3):255-9. PMID: 12139217 [Free Article](#)
21. [Epidemiologic features of intestinal parasitic infections in Italian mental institutions.](#) Giacometti A, Cirioni O, Balducci M, Drenaggi D, Quarta M, De Federicis M, Ruggeri P, Colapinto D, Ripani G, Scalise G. Eur J Epidemiol. 1997 Oct;13(7):825-30. PMID: 9384273
22. [Asymptomatic giardiasis does not affect iron absorption in children with iron deficiency anemia.](#) De Morais MB, Suzuki HU, Corral JN, Machado NL, Neto UF. J Am Coll Nutr. 1996 Oct;15(5):434-8. PMID: 8892168
23. [Asymptomatic carriage of intestinal Cryptosporidium in immunocompetent and immunodeficient children: a prospective study.](#) Pettoello-Mantovani M, Di Martino L, Dettori G, Vajro P, Scotti S, Ditullio MT, Guandalini S. Pediatr Infect Dis J. 1995 Dec;14(12):1042-7. PMID: 8745015
24. [Giardiasis and amoebiasis infections in three Saudi closed communities.](#) Omar MS, al-Awad ME, al-Madani AA. J Trop Med Hyg. 1991 Feb;94(1):57-60. PMID: 1995937
25. [Endemic Cryptosporidium and Giardia lamblia infections in a Thai orphanage.](#) Janoff EN, Mead PS, Mead JR, Echeverria P, Bodhidatta L, Bhaibulaya M, Sterling CR, Taylor DN. Am J Trop Med Hyg. 1990 Sep;43(3):248-56. PMID: 2221219
26. [Longitudinal study of Giardia lamblia infection in a day care center population.](#) Rauch AM, Van R, Bartlett AV, Pickering LK. Pediatr Infect Dis J. 1990 Mar;9(3):186-9. PMID: 2336299
27. [Gut associated immune responses in clinical and experimental giardiasis: an overview.](#) Vinayak VK, Khanna R, Kum K. Trop Gastroenterol. 1990 Jan-Mar;11(1):4-8. Review. PMID: 2192484
28. [Asymptomatic giardiasis in children.](#) Ish-Horowicz M, Korman SH, Shapiro M, Har-Even U, Tamir I, Strauss N, Deckelbaum RJ. Pediatr Infect Dis J. 1989 Nov;8(11):773-9. PMID: 2512565
29. [Protozoal enteric infections among expatriates in Bangladesh.](#) Speelman P, Ljungström I. Am J Trop Med Hyg. 1986 Nov;35(6):1140-5. PMID: 3789269
30. [Amebic infections in asymptomatic homosexual men, lack of evidence of invasive disease.](#) Sorvillo FJ, Strassburg MA, Seidel J, Visvesvara GS, Mori K, Todd A, Portigal L, Finn M, Agee BA. Am J Public Health. 1986 Sep;76(9):1137-9. PMID: 2874747 [Free PMC Article](#)

This document is **Hyperlinked**  
Just click on any heading to see the Pubmed abstract

31. [Parasitic infections in asymptomatic homosexual men: cost-effective screening.](#) Levinson W, Dunn PM, Cooney TG, Sampson JH. J Gen Intern Med. 1986 May-Jun;1(3):150-4. PMID: 3095515
32. [The relative importance of various enteropathogens as a cause of diarrhoea in hospitalized children in Chiang Mai, Thailand.](#) Poocharoen L, Bruin CW, Sirisanthana V, Vannareumol P, Leechanachai P, Sukhavat K. J Diarrhoeal Dis Res. 1986 Mar;4(1):10-5. PMID: 3794260
33. [Diarrheal illness among infants and toddlers in day care centers. II. Comparison with day care homes and households.](#) Bartlett AV, Moore M, Gary GW, Starko KM, Erben JJ, Meredith BA. J Pediatr. 1985 Oct;107(4):503-9. PMID: 2995629
34. [Occurrence of Giardia lamblia in children in day care centers.](#) Pickering LK, Woodward WE, DuPont HL, Sullivan P. J Pediatr. 1984 Apr;104(4):522-6. PMID: 6707812
35. [Intestinal parasites in asymptomatic adult Southeast Asian immigrants.](#) Lerman D, Barrett-Connor E, Norcross W. J Fam Pract. 1982 Sep;15(3):443-6. PMID: 7108458
36. [Waterborne giardiasis: a communitywide outbreak of disease and a high rate of asymptomatic infection.](#) López CE, Dykes AC, Juranek DD, Sinclair SP, Conn JM, Christie RW, Lippy EC, Schultz MG, Mires MH. Am J Epidemiol. 1980 Oct;112(4):495-507. PMID: 7424899
37. [Isolation of enteric pathogens from asymptomatic students from the United States and Latin America.](#) Pickering LK, DuPont HL, Evans DG, Evans DJ Jr, Olarte J. J Infect Dis. 1977 Jun;135(6):1003-5. No abstract available. PMID: 193996

Additional: Biography on Edward K Markell:

<http://www.springerlink.com/content/3gvqx1tx8d8g2m7f/>

Parasitology Research Volume 85, Number 6, 429-430, DOI: 10.1007/s004360050572

In Memoriam Edward K. Markell

This document is **Hyperlinked**  
Just click on any heading to see the Pubmed abstract

### Section 3: Studies of Blastocystis and Irritable Bowel Syndrome (IBS) (22 studies)

1. [The pathogenic role of different \*\*Blastocystis\*\* hominis genotypes isolated from patients with irritable bowel syndrome.](#) Fouad SA, Basyoni MM, Fahmy RA, Kobaisi MH. Arab J Gastroenterol. 2011 Dec;12(4):194-200. Epub 2011 Dec 20. PMID: 22305500
2. [Findings related to IL-8 and IL-10 gene polymorphisms in a Mexican patient population with irritable bowel syndrome infected with \*\*Blastocystis\*\*.](#) Olivo-Diaz A, Romero-Valdovinos M, Gudiño-Ramirez A, Reyes-Gordillo J, Jimenez-Gonzalez DE, Ramirez-Miranda ME, Martinez-Flores WA, Martinez-Hernandez F, Flisser A, Maravilla P. Parasitol Res. 2012 Jan 28. PMID: 22287022
3. [\[Irritable Bowel Syndrome: Frequency and phylogenetic relationship of \*\*Blastocystis\*\* sp. from Mexican patients\].](#) Ramírez-Miranda ME, Jiménez-González DE, Rodríguez-Campa ME, González-Angulo A, Hernández-Castellanos R, Sara Arroyo-Escalante A, Romero-Valdovinos M, Martínez-Hernández F, Flisser A, Maravilla P. Rev Gastroenterol Mex. 2011 Oct;76(4):309-15. Spanish. PMID: 22188955
4. [Blastocystis infection is associated with irritable bowel syndrome in a Mexican patient population.](#) Jimenez-Gonzalez DE, Martinez-Flores WA, Reyes-Gordillo J, Ramirez-Miranda ME, Arroyo-Escalante S, Romero-Valdovinos M, Stark D, Souza-Saldivar V, Martinez-Hernandez F, Flisser A, Olivo-Diaz A, Maravilla P. Parasitol Res. 2011 Aug 26. PMID: 21870243
5. [In vitro sensitivity of \*\*Blastocystis\*\* hominis to garlic, ginger, white cumin, and black pepper used in diet.](#) Yakoob J, Abbas Z, Beg MA, Naz S, Awan S, Hamid S, Jafri W. Parasitol Res. 2011 Aug;109(2):379-85. Epub 2011 Mar 23. PMID: 21431384
6. [Assessment of the association between \*\*Blastocystis\*\* infection and irritable bowel syndrome.](#) Surangsrirat S, Thamrongwittawatpong L, Piyairan W, Naaglor T, Khoprasert C, Taamasri P, Mungthin M, Leelayoova S. J Med Assoc Thai. 2010 Nov;93 Suppl 6:S119-24. PMID: 21280524
7. [Comparison of methods for detection of Blastocystis infection in routinely submitted stool samples, and also in IBS/IBD Patients in Ankara, Turkey.](#) Dogruman-AI F, Simsek Z, Boorum K, Ekici E, Sahin M, Tuncer C, Kustimur S, Altinbas A. PLoS One. 2010 Nov 18;5(11):e15484. PMID: 21124983
8. [Parasites in Mexican patients with irritable bowel syndrome: a case-control study.](#) Ramirez-Miranda ME, Hernandez-Castellanos R, Lopez-Escamilla E, Moncada D, Rodriguez-Magallan A, Pagaza-Melero C, Gonzalez-Angulo A, Flisser A, Kawa-Karasik S, Maravilla P. Parasit Vectors. 2010 Oct 13;3:96. PMID: 20942938

This document is **Hyperlinked**  
Just click on any heading to see the Pubmed abstract

9. [Blastocystis hominis and Dientamoeba fragilis in patients fulfilling irritable bowel syndrome criteria.](#) Yakoob J, Jafri W, Beg MA, Abbas Z, Naz S, Islam M, Khan R. Parasitol Res. 2010 Aug;107(3):679-84. Epub 2010 Jun 8. PMID: 20532564
10. [Blastocystis sp. subtype 2 detection during recurrence of gastrointestinal and urticarial symptoms.](#) Vogelberg C, Stensvold CR, Monecke S, Ditzen A, Stopsack K, Heinrich-Gräfe U, Pöhlmann C. Parasitol Int. 2010 Sep;59(3):469-71. Epub 2010 Apr 2. PMID: 20363362
11. [Irritable bowel syndrome: is it associated with genotypes of Blastocystis hominis.](#) Yakoob J, Jafri W, Beg MA, Abbas Z, Naz S, Islam M, Khan R. Parasitol Res. 2010 Apr;106(5):1033-8. Epub 2010 Feb 23. Erratum in: Parasitol Res. 2011 Dec;109(6):1745. PMID: 20177906
12. [Blastocystis subtypes in irritable bowel syndrome and inflammatory bowel disease in Ankara, Turkey.](#) Dogruman-AI F, Kustimur S, Yoshikawa H, Tuncer C, Simsek Z, Tanyuksel M, Araz E, Boorum K. Mem Inst Oswaldo Cruz. 2009 Aug;104(5):724-7. PMID: 19820833
13. [Blastocystis: unravelling potential risk factors and clinical significance of a common but neglected parasite.](#) Stensvold CR, Lewis HC, Hammerum AM, Porsbo LJ, Nielsen SS, Olsen KE, Arendrup MC, Nielsen HV, Mølbak K. Epidemiol Infect. 2009 Nov;137(11):1655-63. Epub 2009 Apr 27. PMID: 19393117
14. [Oh my aching gut: irritable bowel syndrome, Blastocystis, and asymptomatic infection.](#) Boorum KF, Smith H, Nimri L, Viscogliosi E, Spanakos G, Parkar U, Li LH, Zhou XN, Ok UZ, Leelayoova S, Jones MS. Parasit Vectors. 2008 Oct 21;1(1):40. PMID: 18937874
15. [\[Blastocystis hominis and bowel diseases\].](#) Ustün S, Turgay N. Turkiye Parazitoloj Derg. 2006;30(1):72-6. Review. Turkish. PMID: 17106862
16. [Irritable bowel syndrome: a review on the role of intestinal protozoa and the importance of their detection and diagnosis.](#) Stark D, van Hal S, Marriott D, Ellis J, Harkness J. Int J Parasitol. 2007 Jan;37(1):11-20. Epub 2006 Oct 12. Review. PMID: 17070814
17. [Blastocystis hominis infection in irritable bowel syndrome patients.](#) Tungtrongchitr A, Manatsathit S, Kositchaiwat C, Ongrotchanakun J, Munkong N, Chinabutr P, Leelakusolvong S, Chaicumpa W. Southeast Asian J Trop Med Public Health. 2004 Sep;35(3):705-10. PMID: 15689092
18. [In vitro susceptibility of Blastocystis hominis isolated from patients with irritable bowel syndrome.](#) Yakoob J, Jafri W, Jafri N, Islam M, Asim Beg M. Br J Biomed Sci. 2004;61(2):75-7. PMID: 15250669
19. [Irritable bowel syndrome: in search of an etiology: role of Blastocystis hominis.](#) Yakoob J, Jafri W, Jafri N, Khan R, Islam M, Beg MA, Zaman V. Am J Trop Med Hyg. 2004 Apr;70(4):383-5. PMID: 15100450

This document is **Hyperlinked**  
Just click on any heading to see the Pubmed abstract

20. [Irritable bowel syndrome in patients with Blastocystis hominis infection.](#) Giacometti A, Cirioni O, Fiorentini A, Fortuna M, Scalise G. Eur J Clin Microbiol Infect Dis. 1999 Jun;18(6):436-9. PMID: 10442423
21. [Significantly increased IgG2 subclass antibody levels to Blastocystis hominis in patients with irritable bowel syndrome.](#) Hussain R, Jaferi W, Zuberi S, Baqai R, Abrar N, Ahmed A, Zaman V. Am J Trop Med Hyg. 1997 Mar;56(3):301-6. PMID: 9129532
22. [Blastocystis hominis: pathogen or fellow traveler?](#) Markell EK, Udkow MP. Am J Trop Med Hyg. 1986 Sep;35(5):1023-6. PMID: 3766850

This document is **Hyperlinked**  
Just click on any heading to see the Pubmed abstract

#### Section 4: Studies Linking Blastocystis to Inflammatory Bowel Disease (12 studies)

1. [Six ulcerative colitis patients with refractory symptoms co-infective with \*Blastocystis hominis\* in China.](#) Tai WP, Hu PJ, Wu J, Lin XC. Parasitol Res. 2011 May;108(5):1207-10. Epub 2010 Nov 23. PMID: 21104272
2. [Intestinal protozoa infections among patients with ulcerative colitis: prevalence and impact on clinical disease course.](#) Yamamoto-Furusho JK, Torijano-Carrera E. Digestion. 2010;82(1):18-23. Epub 2010 Feb 9. PMID: 20145404
3. [Comparison of methods for detection of Blastocystis infection in routinely submitted stool samples, and also in IBS/IBD Patients in Ankara, Turkey.](#) Dogruman-AI F, Simsek Z, Boorum K, Ekici E, Sahin M, Tuncer C, Kustimur S, Altinbas A. PLoS One. 2010 Nov 18;5(11):e15484. PMID: 21124983 **Free PMC Article**
4. [Six ulcerative colitis patients with refractory symptoms co-infective with Blastocystis hominis in China.](#) Tai WP, Hu PJ, Wu J, Lin XC. Parasitol Res. 2011 May;108(5):1207-10. Epub 2010 Nov 23. PMID: 21104272
5. [Intestinal protozoa infections among patients with ulcerative colitis: prevalence and impact on clinical disease course.](#) Yamamoto-Furusho JK, Torijano-Carrera E. Digestion. 2010;82(1):18-23. Epub 2010 Feb 9. PMID: 20145404
6. [Blastocystis subtypes in irritable bowel syndrome and inflammatory bowel disease in Ankara, Turkey.](#) Dogruman-AI F, Kustimur S, Yoshikawa H, Tuncer C, Simsek Z, Tanyuksel M, Araz E, Boorum K. Mem Inst Oswaldo Cruz. 2009 Aug;104(5):724-7. PMID: 19820833
7. Prospective, observational, cross-sectional study of intestinal infections among acutely active inflammatory bowel disease patients. Navarro-Llavat M, Domènech E, Bernal I, Sánchez-Delgado J, Manterola JM, Garcia-Planella E, Mañosa M, Cabré E, Gassull MA. Digestion. 2009;80(1):25-9. Epub 2009 May 14. PMID: 19439968
8. [Is this recently characterized gastrointestinal pathogen responsible for rising rates of inflammatory bowel disease \(IBD\) and IBD associated autism in Europe and the United States in the 1990s?](#) Boorum KF. Med Hypotheses. 2007;69(3):652-9. Epub 2007 Mar 26. PMID: 17382484
9. [\[Blastocystis hominis and bowel diseases\].](#) Ustün S, Turgay N. Turkiye Parazitoloj Derg. 2006;30(1):72-6. Review. Turkish. PMID: 17106862
10. [Enteric infection in relapse of inflammatory bowel disease: importance of microbiological examination of stool.](#) Mylonaki M, Langmead L, Pantes A, Johnson F, Rampton DS. Eur J Gastroenterol Hepatol. 2004 Aug;16(8):775-8. PMID: 15256979

This document is **Hyperlinked**  
Just click on any heading to see the Pubmed abstract

11. [Invasive Blastocystis hominis infection in a child.](#) al-Tawil YS, Gilger MA, Gopalakrishna GS, Langston C, Bommer KE. Arch Pediatr Adolesc Med. 1994 Aug;148(8):882-5. PMID: 8044274
12. [Blastocystis hominis in inflammatory bowel disease.](#) Nagler J, Brown M, Soave R. J Clin Gastroenterol. 1993 Mar;16(2):109-12. PMID: 8463612

This document is **Hyperlinked**  
Just click on any heading to see the Pubmed abstract

## Section 5: Studies Describing the Physiological Effect of Blastocystis in Humans and Pathogenesis of Blastocystosis (16 studies)

1. [Effects of symptomatic and asymptomatic isolates of \*Blastocystis\* hominis on colorectal cancer cell line, HCT116.](#) Chan KH, Chandramathi S, Suresh K, Chua KH, Kuppusamy UR. Parasitol Res. 2012 Jan 26. [Epub ahead of print] PMID: 22278727
2. [Blastocystis hominis as a contributing risk factor for development of iron deficiency anemia in pregnant women.](#) El Deeb HK, Salah-Eldin H, Khodeer S. Parasitol Res. 2011 Dec 14. [Epub ahead of print] PMID: 22167376
3. [A metronidazole-resistant isolate of \*Blastocystis\* spp. is susceptible to nitric oxide and downregulates intestinal epithelial inducible nitric oxide synthase by a novel parasite survival mechanism.](#) Mirza H, Wu Z, Kidwai F, Tan KS. Infect Immun. 2011 Dec;79(12):5019-26. Epub 2011 Sep 19. PMID: 21930763
4. [Protease activity of \*Blastocystis\* hominis subtype3 in symptomatic and asymptomatic patients.](#) Abdel-Hameed DM, Hassanin OM. Parasitol Res. 2011 Aug;109(2):321-7. Epub 2011 Jan 29. PMID: 21279383
5. [The potential use of 29 kDa protein as a marker of pathogenicity and diagnosis of symptomatic infections with \*Blastocystis\* hominis.](#) Abou Gamra MM, Elwakil HS, El Deeb HK, Khalifa KE, Abd Elhafiz HE. Parasitol Res. 2011 May;108(5):1139-46. Epub 2010 Dec 7. PMID: 21136081
6. [Elevated levels of urinary hyaluronidase in humans infected with intestinal parasites.](#) Chandramathi S, Suresh K, Kuppusamy UR. Ann Trop Med Parasitol. 2010 Jul;104(5):449-52. No abstract available. PMID: 20819313
7. [Urinary hyaluronidase activity in rats infected with \*Blastocystis\* hominis--evidence for invasion?](#) Chandramathi S, Suresh KG, Mahmood AA, Kuppusamy UR. Parasitol Res. 2010 May;106(6):1459-63. Epub 2010 Apr 1. PMID: 20358228
8. [Solubilized antigen of \*Blastocystis\* hominis facilitates the growth of human colorectal cancer cells, HCT116.](#) Chandramathi S, Suresh K, Kuppusamy UR. Parasitol Res. 2010 Mar;106(4):941-5. Epub 2010 Feb 18. PMID: 20165878
9. [High levels of oxidative stress in rats infected with \*Blastocystis\* hominis.](#) Chandramathi S, Suresh K, Shuba S, Mahmood A, Kuppusamy UR. Parasitology. 2010 Apr;137(4):605-11. Epub 2009 Dec 7. PMID: 19961647

This document is **Hyperlinked**  
Just click on any heading to see the Pubmed abstract

10. [Kinetic analysis of antibody responses to Blastocystis hominis in sera and intestinal secretions of orally infected mice.](#) Santos HJ, Rivera WL. Parasitol Res. 2009 Oct;105(5):1303-10. Epub 2009 Jul 14. PMID: 19597843
11. [Elevated levels of urinary hydrogen peroxide, advanced oxidative protein product \(AOPP\) and malondialdehyde in humans infected with intestinal parasites.](#) Chandramathi S, Suresh K, Anita ZB, Kuppusamy UR. Parasitology. 2009 Mar;136(3):359-63. Epub 2009 Jan 21. PMID: 19154644
12. [Blastocystis exhibits inter- and intra-subtype variation in cysteine protease activity.](#) Mirza H, Tan KS. Parasitol Res. 2009 Jan;104(2):355-61. Epub 2008 Oct 10. PMID: 18846388
13. [Blastocystis ratti contains cysteine proteases that mediate interleukin-8 response from human intestinal epithelial cells in an NF-kappaB-dependent manner.](#) Puthia MK, Lu J, Tan KS. Eukaryot Cell. 2008 Mar;7(3):435-43. Epub 2007 Dec 21. PMID: 18156286
14. [Blastocystis ratti induces contact-independent apoptosis, F-actin rearrangement, and barrier function disruption in IEC-6 cells.](#) Puthia MK, Sio SW, Lu J, Tan KS. Infect Immun. 2006 Jul;74(7):4114-23. PMID: 16790785
15. [Degradation of human secretory immunoglobulin A by Blastocystis.](#) Puthia MK, Vaithilingam A, Lu J, Tan KS. Parasitol Res. 2005 Nov;97(5):386-9. Epub 2005 Sep 7. PMID: 16151742
16. [Secretory and humoral antibody responses to Blastocystis hominis in symptomatic and asymptomatic human infections.](#) Mahmoud MS, Saleh WA. J Egypt Soc Parasitol. 2003 Apr;33(1):13-30. PMID: 12739797
17. [Significantly increased IgG2 subclass antibody levels to Blastocystis hominis in patients with irritable bowel syndrome.](#) Hussain R, Jaferi W, Zuberi S, Baqai R, Abrar N, Ahmed A, Zaman V. Am J Trop Med Hyg. 1997 Mar;56(3):301-6. PMID: 9129532
18. [Enzyme-linked immunosorbent assay for detection of serum antibody to Blastocystis hominis in symptomatic infections.](#) Zierdt CH, Zierdt WS, Nagy B. J Parasitol. 1995 Feb;81(1):127-9. PMID: 7876972

This document is **Hyperlinked**  
Just click on any heading to see the Pubmed abstract

## Section 6: Studies Describing How to Detect Blastocystis in Humans (31 studies)

1. [Development of a new PCR protocol to detect and subtype Blastocystis spp. from humans and animals.](#) Santín M, Gómez-Muñoz MT, Solano-Aguilar G, Fayer R. Parasitol Res. 2011 Jul;109(1):205-12. Epub 2011 Jan 6. PMID: 21210149
2. [Development and evaluation of a real-time PCR assay for detection and quantification of blastocystis parasites in human stool samples: prospective study of patients with hematological malignancies.](#) Poirier P, Wawrzyniak I, Albert A, El Alaoui H, Delbac F, Livrelli V. J Clin Microbiol. 2011 Mar;49(3):975-83. Epub 2010 Dec 22. PMID: 21177897 **Free PMC Article**
3. [Comparison of methods for detection of Blastocystis infection in routinely submitted stool samples, and also in IBS/IBD Patients in Ankara, Turkey.](#) Dogruman-AI F, Simsek Z, Boorum K, Ekici E, Sahin M, Tuncer C, Kustimur S, Altinbas A. PLoS One. 2010 Nov 18;5(11):e15484. PMID: 21124983 **Free PMC Article**
4. [Controlled study on enteropathogens in travellers returning from the tropics with and without diarrhoea.](#) Paschke C, Apelt N, Fleischmann E, Perona P, Walentiny C, Löscher T, Herbinger KH. Clin Microbiol Infect. 2011 Aug;17(8):1194-200. doi: 10.1111/j.1469-0691.2010.03414.x. Epub 2010 Dec 13. PMID: 21054662
5. [Blastocystis hominis and Dientamoeba fragilis in patients fulfilling irritable bowel syndrome criteria.](#) Yakoob J, Jafri W, Beg MA, Abbas Z, Naz S, Islam M, Khan R. Parasitol Res. 2010 Aug;107(3):679-84. Epub 2010 Jun 8. PMID: 20532564
6. [Irritable bowel syndrome: is it associated with genotypes of Blastocystis hominis.](#) Yakoob J, Jafri W, Beg MA, Abbas Z, Naz S, Islam M, Khan R. Parasitol Res. 2010 Apr;106(5):1033-8. Epub 2010 Feb 23. Erratum in: Parasitol Res. 2011 Dec;109(6):1745. PMID: 20177906
7. [Molecular characterization of Blastocystis species in Oregon identifies multiple subtypes.](#) Whipps CM, Boorum K, Bermudez LE, Kent ML. Parasitol Res. 2010 Mar;106(4):827-32. Epub 2010 Feb 2. PMID: 20127113
8. [Molecular characterization of Blastocystis isolates from zoo animals and their animal-keepers.](#) Parkar U, Traub RJ, Vitali S, Elliot A, Levecke B, Robertson I, Geurden T, Steele J, Drake B, Thompson RC. Vet Parasitol. 2010 Apr 19;169(1-2):8-17. Epub 2010 Jan 4. PMID: 20089360
9. [Subtype analysis of Blastocystis isolates from symptomatic patients in Egypt.](#) Souppart L, Moussa H, Cian A, Sancier G, Poirier P, El Alaoui H, Delbac F, Boorum K, Delhaes L, Dei-Cas E, Viscogliosi E. Parasitol Res. 2010 Jan;106(2):505-11. Epub 2009 Dec 2. PMID: 19953268

This document is **Hyperlinked**  
Just click on any heading to see the Pubmed abstract

10. [PCR-based subtyping of Blastocystis isolates from symptomatic and asymptomatic individuals in a major hospital in Ankara, Turkey.](#) Dogruman-AI F, Yoshikawa H, Kustimur S, Balaban N. Parasitol Res. 2009 Dec;106(1):263-8. Epub 2009 Oct 22. PMID: 19847459
11. [Blastocystis subtypes in irritable bowel syndrome and inflammatory bowel disease in Ankara, Turkey.](#) Dogruman-AI F, Kustimur S, Yoshikawa H, Tuncer C, Simsek Z, Tanyuksel M, Araz E, Boorum K. Mem Inst Oswaldo Cruz. 2009 Aug;104(5):724-7. PMID: 19820833 **Free Article**
12. [Identification of Blastocystis hominis isolates from asymptomatic and symptomatic patients by PCR.](#) Eroglu F, Genc A, Elgun G, Koltas IS. Parasitol Res. 2009 Nov;105(6):1589-92. Epub 2009 Aug 15. PMID: 19685075
13. [Genetic analysis of Blastocystis hominis isolated from symptomatic and asymptomatic human hosts in Egypt.](#) Elwakil HS, Talaat RM. J Egypt Soc Parasitol. 2009 Apr;39(1):99-109. PMID: 19530613
14. [High prevalence of subtype 4 among isolates of Blastocystis hominis from symptomatic patients of a health district of Valencia \(Spain\).](#) Domínguez-Márquez MV, Guna R, Muñoz C, Gómez-Muñoz MT, Borrás R. Parasitol Res. 2009 Oct;105(4):949-55. Epub 2009 May 27. PMID: 19471964
15. [Molecular epidemiology of human Blastocystis isolates in France.](#) Souppart L, Sancier G, Cian A, Wawrzyniak I, Delbac F, Capron M, Dei-Cas E, Boorum K, Delhaes L, Viscogliosi E. Parasitol Res. 2009 Aug;105(2):413-21. Epub 2009 Mar 17. PMID: 19290540
16. [Association of Blastocystis subtype 3 and 1 with patients from an Oregon community presenting with chronic gastrointestinal illness.](#) Jones MS, Whipps CM, Ganac RD, Hudson NR, Boorum K. Parasitol Res. 2009 Jan;104(2):341-5. Epub 2008 Oct 16. Erratum in: Parasitol Res. 2009 Jan;104(2):491. Boroom, Kenneth [corrected to Boorum, Kenneth]. PMID: 18923844
17. [Detection of Blastocystis from stool samples using real-time PCR.](#) Jones MS 2nd, Ganac RD, Hiser G, Hudson NR, Le A, Whipps CM. Parasitol Res. 2008 Aug;103(3):551-7. Epub 2008 May 17. PMID: 18488250
18. [\[Dot enzyme-linked immunosorbent assay for detection of serum antibody to Blastocystis hominis in humans\].](#) Su SL, Yan YM, Liao H, Chen GF, Zhang RQ, Xie QJ, Le X, Hu YQ, Zeng XY, Lan HY, Xie RL, Huang Z. Zhongguo Ji Sheng Chong Xue Yu Ji Sheng Chong Bing Za Zhi. 2007 Jun;25(3):256-8. Chinese. PMID: 18038792
19. [Detecting Blastocystis using parasitologic and DNA-based methods: a comparative study.](#) Stensvold CR, Arendrup MC, Jespersgaard C, Mølbak K, Nielsen HV. Diagn Microbiol Infect Dis. 2007 Nov;59(3):303-7. Epub 2007 Oct 29. PMID: 17913433

This document is **Hyperlinked**  
Just click on any heading to see the Pubmed abstract

20. [Direct detection of Blastocystis sp. in human faecal samples and subtype assignment using single strand conformational polymorphism and sequencing.](#) Menounos PG, Spanakos G, Tegos N, Vassalos CM, Papadopoulou C, Vakalis NC. Mol Cell Probes. 2008 Feb;22(1):24-9. Epub 2007 Jul 1. PMID: 17669623
21. [Detection of Blastocystis hominis in unpreserved stool specimens by using polymerase chain reaction.](#) Stensvold R, Brillowska-Dabrowska A, Nielsen HV, Arendrup MC. J Parasitol. 2006 Oct;92(5):1081-7. PMID: 17152954
22. [Direct characterization of Blastocystis from faeces by PCR and evidence of zoonotic potential.](#) Parkar U, Traub RJ, Kumar S, Mungthin M, Vitali S, Leelayoova S, Morris K, Thompson RC. Parasitology. 2007 Mar;134(Pt 3):359-67. Epub 2006 Oct 19. PMID: 17052374
23. [PCR for the identification and differentiation of Histomonas meleagridis, Tetratrichomonas gallinarum and Blastocystis spp.](#) Grabensteiner E, Hess M. Vet Parasitol. 2006 Dec 20;142(3-4):223-30. Epub 2006 Aug 21. PMID: 16920265
24. [Detection of Dientamoeba fragilis and Blastocystis hominis using a simple staining method.](#) Windsor JJ, Bamber AI, Macfarlane L. Br J Biomed Sci. 2006;63(1):27-8. No abstract available. PMID: 16613140
25. [The usefulness of short-term in vitro cultivation for the detection and molecular study of Blastocystis hominis in stool specimens.](#) Termmathurapoj S, Leelayoova S, Aimpun P, Thathaisong U, Nimmanon T, Taamasri P, Mungthin M. Parasitol Res. 2004 Aug;93(6):445-7. Epub 2004 Jul 9. PMID: 15243800
26. [Comparison of methods for detecting Blastocystis hominis.](#) Suresh K, Smith H. Eur J Clin Microbiol Infect Dis. 2004 Jun;23(6):509-11. Epub 2004 May 28. PMID: 15168139
27. [In-vitro cultivation: a sensitive method for detecting Blastocystis hominis.](#) Leelayoova S, Taamasri P, Rangsin R, Naaglor T, Thathaisong U, Mungthin M. Ann Trop Med Parasitol. 2002 Dec;96(8):803-7. PMID: 12625935
28. [Seasonal prevalence of intestinal parasites in the United States during 2000.](#) Amin OM. Am J Trop Med Hyg. 2002 Jun;66(6):799-803. PMID: 12224595 **Free Article**
29. [Performance of para-Pak Ultra ECOFIX compared with Para-Pak Ultra formalin/mercuric chloride-based polyvinyl alcohol for concentration and permanent stained smears of stool parasites.](#) Fedorko DP, Williams EC, Nelson NA, Mazyck TD, Hanson KL, Cartwright CP. Diagn Microbiol Infect Dis. 2000 May;37(1):37-9. PMID: 10794938
30. [Enzyme-linked immunosorbent assay for detection of serum antibody to Blastocystis hominis in symptomatic infections.](#) Zierdt CH, Zierdt WS, Nagy B. J Parasitol. 1995 Feb;81(1):127-9. PMID: 7876972

This document is **Hyperlinked**  
Just click on any heading to see the Pubmed abstract

31. [Detection of Blastocystis hominis by direct microscopy and culture.](#) Kukoschke KG, Necker A, Müller HE. Eur J Clin Microbiol Infect Dis. 1990 Apr;9(4):305-7. No abstract available. PMID: 2351150

This document is **Hyperlinked**  
Just click on any heading to see the Pubmed abstract

## Section 7: Animal Models for Blastocystis Infection (19 studies)

1. [Pathogenic potential of Blastocystis hominis in laboratory mice.](#) Elwakil HS, Hewedi IH. Parasitol Res. 2010 Aug;107(3):685-9. Epub 2010 May 25. PMID: 20499092
2. [Urinary hyaluronidase activity in rats infected with Blastocystis hominis--evidence for invasion?](#) Chandramathi S, Suresh KG, Mahmood AA, Kuppusamy UR. Parasitol Res. 2010 May;106(6):1459-63. Epub 2010 Apr 1. PMID: 20358228
3. [Encystation--survival of Blastocystis hominis in immunocompetent mice abdomen cavity.](#) Zhou XB, Zhang X, Qiao JY, Cai J, Cheng S, Yuan Y, Li J. Parasitol Res. 2010 May;106(6):1315-20. Epub 2010 Mar 20. PMID: 20306208
4. [High levels of oxidative stress in rats infected with Blastocystis hominis.](#) Chandramathi S, Suresh K, Shuba S, Mahmood A, Kuppusamy UR. Parasitology. 2010 Apr;137(4):605-11. Epub 2009 Dec 7. PMID: 19961647
5. [Kinetic analysis of antibody responses to Blastocystis hominis in sera and intestinal secretions of orally infected mice.](#) Santos HJ, Rivera WL. Parasitol Res. 2009 Oct;105(5):1303-10. Epub 2009 Jul 14. PMID: 19597843
6. [Expression of interferon gamma and proinflammatory cytokines in the cecal mucosa of rats experimentally infected with Blastocystis sp. strain RN94-9.](#) Iguchi A, Yoshikawa H, Yamada M, Kimata I, Arizono N. Parasitol Res. 2009 Jul;105(1):135-40. Epub 2009 Mar 3. PMID: 19255785
7. [Effect of exogenous administration of antioxidants on Blastocystis hominis in vivo.](#) Helmy MM, Hussein EM, El-Moamly AA, Eida AM, Eida OM, Salem AM. J Egypt Soc Parasitol. 2008 Apr;38(1):103-14. PMID: 19143124
8. [Evaluation of the nitric oxide activity against Blastocystis hominis in vitro and in vivo.](#) Eida OM, Hussein EM, Eida AM, El-Moamly AA, Salem AM. J Egypt Soc Parasitol. 2008 Aug;38(2):521-36. PMID: 18853625
9. [Pathophysiological variability of different genotypes of human Blastocystis hominis Egyptian isolates in experimentally infected rats.](#) Hussein EM, Hussein AM, Eida MM, Atwa MM. Parasitol Res. 2008 Apr;102(5):853-60. Epub 2008 Jan 11. PMID: 18193282
10. [Infectivity of different genotypes of human Blastocystis hominis isolates in chickens and rats.](#) Iguchi A, Ebisu A, Nagata S, Saitou Y, Yoshikawa H, Iwatani S, Kimata I. Parasitol Int. 2007 Jun;56(2):107-12. Epub 2006 Dec 28. PMID: 17251054

This document is **Hyperlinked**  
Just click on any heading to see the Pubmed abstract

11. [\[Impact of blastocystis hominis infection on ultrastructure of intestinal mucosa in mice\]](#). Zhang HW, Li W, Yan QY, He LJ, Su YP. Zhongguo Ji Sheng Chong Xue Yu Ji Sheng Chong Bing Za Zhi. 2006 Jun;24(3):187-91. Chinese. PMID: 17094618
12. [\[Experimental infection of mice with Blastocystis hominis\]](#). Yao FR, Qiao JY, Zhao Y, Zhang X, Yang JH, Li XQ. Zhongguo Ji Sheng Chong Xue Yu Ji Sheng Chong Bing Za Zhi. 2005 Dec 30;23(6):444-8. Chinese. PMID: 16566218
13. [Morphology, histochemistry and infectivity of Blastocystis hominis cyst.](#) Abou El Naga IF, Negm AY. J Egypt Soc Parasitol. 2001 Aug;31(2):627-35. PMID: 11478461
14. [Irregular shedding of Blastocystis hominis.](#) Vennila GD, Suresh Kumar G, Khairul Anuar A, Rajah S, Saminathan R, Sivanandan S, Ramakrishnan K. Parasitol Res. 1999 Feb;85(2):162-4. PMID: 9934969
15. [Cytopathic effect of Blastocystis hominis after intramuscular inoculation into laboratory mice.](#) Moe KT, Singh M, Gopalakrishnakone P, Ho LC, Tan SW, Chen XQ, Yap EH. Parasitol Res. 1998 Jun;84(6):450-4. PMID: 9660133
16. [Experimental Blastocystis hominis infection in laboratory mice.](#) Moe KT, Singh M, Howe J, Ho LC, Tan SW, Chen XQ, Ng GC, Yap EH. Parasitol Res. 1997;83(4):319-25. PMID: 9134552
17. [Tubulovesicular elements in Blastocystis hominis from the caecum of experimentally-infected rats.](#) Suresh K, Chong SY, Howe J, Ho LC, Ng GC, Yap EH, Singh M. Int J Parasitol. 1995 Jan;25(1):123-6. PMID: 7797363
18. [In vitro encystment and experimental infections of Blastocystis hominis.](#) Suresh K, Ng GC, Ramachandran NP, Ho LC, Yap EH, Singh M. Parasitol Res. 1993;79(6):456-60. PMID: 8415557
19. [An experimental transmission of porcine strains of Blastocystis sp. in the laboratory mice and gerbils.](#) Pakandl M. Folia Parasitol (Praha). 1992;39(4):383-6. PMID: 1291454

This document is **Hyperlinked**  
Just click on any heading to see the Pubmed abstract

## Section 8: Antibody Response to Blastocystis (19 studies)

1. [The potential use of 29 kDa protein as a marker of pathogenicity and diagnosis of symptomatic infections with \*Blastocystis hominis\*.](#) Abou Gamra MM, Elwakil HS, El Deeb HK, Khalifa KE, Abd Elhafiz HE. Parasitol Res. 2011 May;108(5):1139-46. Epub 2010 Dec 7. PMID: 21136081
2. [Solubilized antigen of \*Blastocystis hominis\* facilitates the growth of human colorectal cancer cells, HCT116.](#) Chandramathi S, Suresh K, Kuppusamy UR. Parasitol Res. 2010 Mar;106(4):941-5. Epub 2010 Feb 18. PMID:20165878
3. [Staurosporine-induced programmed cell death in \*Blastocystis\* occurs independently of caspases and cathepsins and is augmented by calpain inhibition.](#) Yin J, Howe J, Tan KS. Microbiology. 2010 May;156(Pt 5):1284-93. Epub 2010 Jan 7. PMID: 20056704
4. [Blastocystis legumain is localized on the cell surface, and specific inhibition of its activity implicates a pro-survival role for the enzyme.](#) Wu B, Yin J, Texier C, Roussel M, Tan KS. J Biol Chem. 2010 Jan 15;285(3):1790-8. Epub 2009 Nov 13. PMID: 19915007
5. [Kinetic analysis of antibody responses to \*Blastocystis hominis\* in sera and intestinal secretions of orally infected mice.](#) Santos HJ, Rivera WL. Parasitol Res. 2009 Oct;105(5):1303-10. Epub 2009 Jul 14. PMID: 19597843
6. [Degradation of human secretory immunoglobulin A by \*Blastocystis\*.](#) Puthia MK, Vaithilingam A, Lu J, Tan KS. Parasitol Res. 2005 Nov;97(5):386-9. Epub 2005 Sep 7. PMID: 16151742
7. [Secretory and humoral antibody responses to \*Blastocystis hominis\* in symptomatic and asymptomatic human infections.](#) Mahmoud MS, Saleh WA. J Egypt Soc Parasitol. 2003 Apr;33(1):13-30. PMID: 12739797
8. [Exposure of \*Blastocystis\* species to a cytotoxic monoclonal antibody.](#) Tan KS, Ibrahim M, Ng GC, Nasirudeen AM, Ho LC, Yap EH, Singh M. Parasitol Res. 2001 Jul;87(7):534-8. PMID: 11484849
9. [Serologic response to \*Blastocystis hominis\* infection in asymptomatic individuals.](#) Kaneda Y, Horiki N, Cheng X, Tachibana H, Tsutsumi Y. Tokai J Exp Clin Med. 2000 Jun;25(2):51-6. PMID: 11127507
10. [Characterization of protein profiles and cross-reactivity of \*Blastocystis\* antigens by sodium dodecyl sulfate-polyacrylamide gel electrophoresis and immunoblot analysis.](#) Chen XQ, Singh M, Ho LC, Tan SW, Yap EH. Parasitol Res. 1999 Apr;85(4):343-6. PMID: 10099019
11. [Survival of \*Blastocystis hominis\* clones after exposure to a cytotoxic monoclonal antibody.](#) Tan SW, Singh M, Ho LC, Howe J, Moe KT, Chen XQ, Ng GC, Yap EH. Int J Parasitol. 1997 Aug;27(8):947-54. PMID: 9292311

This document is **Hyperlinked**  
Just click on any heading to see the Pubmed abstract

12. [Significantly increased IgG2 subclass antibody levels to Blastocystis hominis in patients with irritable bowel syndrome.](#) Hussain R, Jaferi W, Zuberi S, Baqai R, Abrar N, Ahmed A, Zaman V. Am J Trop Med Hyg. 1997 Mar;56(3):301-6. PMID: 9129532
13. [Production and characterization of murine monoclonal antibodies to Blastocystis hominis.](#) Tan SW, Ho LC, Moe KT, Chen XQ, Ng GC, Yap EH, Singh M. Int J Parasitol. 1996 Apr;26(4):375-81. PMID: 8773525
14. [Enzyme-linked immunosorbent assay for detection of serum antibody to Blastocystis hominis in symptomatic infections.](#) Zierdt CH, Zierdt WS, Nagy B. J Parasitol. 1995 Feb;81(1):127-9. PMID: 7876972
15. [Antibody response to Blastocystis hominis infections.](#) Zierdt CH, Nagy B. Ann Intern Med. 1993 Jun 15;118(12):985-6. No abstract available. PMID: 8489119
16. [SDS-PAGE and immunological analysis of different axenic Blastocystis hominis strains.](#) Kukoschke KG, Müller HE. J Med Microbiol. 1991 Jul;35(1):35-9. PMID: 1906543
17. [Blastocystis hominis--past and future.](#) Zierdt CH. Clin Microbiol Rev. 1991 Jan;4(1):61-79. Review. PMID: 2004348
18. [Lack of serum immune response to Blastocystis hominis.](#) Chen JL, Vaudry WL, Kowalewska K, Wenman WM. Lancet. 1987 Oct 31;2(8566):1021. No abstract available. PMID: 2889924

This document is **Hyperlinked**  
Just click on any heading to see the Pubmed abstract

## Section 9: Culturing Blastocystis (63 studies)

1. [In vitro culture of Blastocystis hominis in three liquid media and its usefulness in the diagnosis of blastocystosis.](#) Zhang X, Qiao J, Wu X, Da R, Zhao L, Wei Z. Int J Infect Dis. 2012 Jan;16(1):e23-8. Epub 2011 Nov 1. PMID: 22047715
2. [BLASTOCYSTIS SUBTYPES IN SYMPTOMATIC AND ASYMPTOMATIC FAMILY MEMBERS AND PETS AND RESPONSE TO THERAPY.](#) Nagel R, Cuttell L, Stensvold CR, Mills PC, Bielefeldt-Ohmann H, Traub RJ. Intern Med J. 2011 Oct 27. doi: 10.1111/j.1445-5994.2011.02626.x. PMID: 22032439
3. [Ultrastructural insights into morphology and reproductive mode of Blastocystis hominis.](#) Zhang X, Zhang S, Qiao J, Wu X, Zhao L, Liu Y, Fan X. Parasitol Res. 2011 Aug 16. PMID: 21845408
4. [Evaluation of DNA extraction kits for molecular diagnosis of human Blastocystis subtypes from fecal samples.](#) Yoshikawa H, Dogruman-Ai F, Turk S, Kustimur S, Balaban N, Sultan N. Parasitol Res. 2011 Oct;109(4):1045-50. Epub 2011 Apr 16. PMID: 21499752
5. [In vitro sensitivity of Blastocystis hominis to garlic, ginger, white cumin, and black pepper used in diet.](#) Yakoob J, Abbas Z, Beg MA, Naz S, Awan S, Hamid S, Jafri W. Parasitol Res. 2011 Aug;109(2):379-85. Epub 2011 Mar 23. PMID: 21431384
6. [Detection and subtype identification of Blastocystis isolates from wastewater samples in the Philippines.](#) Banaticla JE, Rivera WL. J Water Health. 2011 Mar;9(1):128-37. PMID: 21301121
7. [Comparison of microscopy, culture, and conventional polymerase chain reaction for detection of blastocystis sp. in clinical stool samples.](#) Roberts T, Barratt J, Harkness J, Ellis J, Stark D. Am J Trop Med Hyg. 2011 Feb;84(2):308-12. PMID: 21292905
8. [Protease activity of Blastocystis hominis subtype3 in symptomatic and asymptomatic patients.](#) Abdel-Hameed DM, Hassanin OM. Parasitol Res. 2011 Aug;109(2):321-7. Epub 2011 Jan 29. PMID: 21279383
9. [Development and evaluation of a real-time PCR assay for detection and quantification of blastocystis parasites in human stool samples: prospective study of patients with hematological malignancies.](#) Poirier P, Wawrzyniak I, Albert A, El Alaoui H, Delbac F, Livrelli V. J Clin Microbiol. 2011 Mar;49(3):975-83. Epub 2010 Dec 22. PMID: 21177897
10. [Comparison of methods for detection of Blastocystis infection in routinely submitted stool samples, and also in IBS/IBD Patients in Ankara, Turkey.](#) Dogruman-AI F, Simsek Z, Boorum K, Ekici E, Sahin M, Tuncer C, Kustimur S, Altinbas A. PLoS One. 2010 Nov 18;5(11):e15484. PMID: 21124983

This document is **Hyperlinked**  
Just click on any heading to see the Pubmed abstract

11. [Solubilized antigen of Blastocystis hominis facilitates the growth of human colorectal cancer cells, HCT116.](#) Chandramathi S, Suresh K, Kuppusamy UR. Parasitol Res. 2010 Mar;106(4):941-5. Epub 2010 Feb 18. PMID: 20165878
12. [Study of the dynamics of Blastocystis hominis reproduction in vitro.](#) Irikov OA, Antokhin AI, Romanov YA. Bull Exp Biol Med. 2009 Jul;148(1):99-102. PMID: 19902108
13. [PCR-based subtyping of Blastocystis isolates from symptomatic and asymptomatic individuals in a major hospital in Ankara, Turkey.](#) Dogruman-AI F, Yoshikawa H, Kustimur S, Balaban N. Parasitol Res. 2009 Dec;106(1):263-8. Epub 2009 Oct 22. PMID: 19847459
14. [Blastocystis subtypes in irritable bowel syndrome and inflammatory bowel disease in Ankara, Turkey.](#) Dogruman-AI F, Kustimur S, Yoshikawa H, Tuncer C, Simsek Z, Tanyuksel M, Araz E, Boorum K. Mem Inst Oswaldo Cruz. 2009 Aug;104(5):724-7. PMID: 19820833
15. [Subtype analysis of Blastocystis isolates from Blastocystis cyst excreting patients.](#) Rene BA, Stensvold CR, Badsberg JH, Nielsen HV. Am J Trop Med Hyg. 2009 Apr;80(4):588-92. PMID: 19346381
16. [Evaluation of the nitric oxide activity against Blastocystis hominis in vitro and in vivo.](#) Eida OM, Hussein EM, Eida AM, El-Moamly AA, Salem AM. J Egypt Soc Parasitol. 2008 Aug;38(2):521-36. PMID: 18853625
17. [Protein profile and morphometry of cultured human Blastocystis hominis from children with gastroenteritis and healthy ones.](#) Hegazy MM, Makloul LM, El Hamshary EM, Dawoud HA, Eida AM. J Egypt Soc Parasitol. 2008 Aug;38(2):453-64. PMID: 18853619
18. [Micro-eukaryotic diversity of the human distal gut microbiota: qualitative assessment using culture-dependent and -independent analysis of faeces.](#) Scanlan PD, Marchesi JR. ISME J. 2008 Dec;2(12):1183-93. Epub 2008 Jul 31. PMID: 18670396
19. [Evaluation of the in vitro effect of Nigella sativa aqueous extract on Blastocystis hominis isolates.](#) El Wakil SS. J Egypt Soc Parasitol. 2007 Dec;37(3):801-13. PMID: 18383782
20. [Detecting Blastocystis using parasitologic and DNA-based methods: a comparative study.](#) Stensvold CR, Arendrup MC, Jespersgaard C, Mølbak K, Nielsen HV. Diagn Microbiol Infect Dis. 2007 Nov;59(3):303-7. Epub 2007 Oct 29. PMID: 17913433
21. [Cross-sectional surveys and subtype classification of human Blastocystis isolates from four epidemiological settings in China.](#) Li LH, Zhang XP, Lv S, Zhang L, Yoshikawa H, Wu Z, Steinmann P, Utzinger J, Tong XM, Chen SH, Zhou XN. Parasitol Res. 2007 Dec;102(1):83-90. Epub 2007 Oct 2. PMID: 17912552

This document is **Hyperlinked**  
Just click on any heading to see the Pubmed abstract

22. [The use of the antifungal agent miconazole as an inhibitor of Blastocystis hominis growth in Entamoeba histolytica/E. dispar cultures.](#) Gonçalves AQ, Viana Jda C, Pires EM, Bóia MN, Coura JR, Silva EF. Rev Inst Med Trop Sao Paulo. 2007 May-Jun;49(3):201-2. PMID: 17625701
23. [Colony growth of Philippine isolates of Blastocystis hominis in simplified, soft agar medium.](#) Valido EM, Rivera WL. Parasitol Res. 2007 Jun;101(1):213-7. Epub 2007 Jan 18. PMID: 17235545
24. [Morphology and reproductive mode of Blastocystis hominis in diarrhea and in vitro.](#) Zhang X, Qiao JY, Zhou XJ, Yao FR, Wei ZC. Parasitol Res. 2007 Jun;101(1):43-51. Epub 2007 Jan 11. PMID: 17216486
25. [Detection of Blastocystis hominis in unpreserved stool specimens by using polymerase chain reaction.](#) Stensvold R, Brillowska-Dabrowska A, Nielsen HV, Arendrup MC. J Parasitol. 2006 Oct;92(5):1081-7. PMID: 17152954
26. [Direct characterization of Blastocystis from faeces by PCR and evidence of zoonotic potential.](#) Parkar U, Traub RJ, Kumar S, Mungthin M, Vitali S, Leelayoova S, Morris K, Thompson RC. Parasitology. 2007 Mar;134(Pt 3):359-67. Epub 2006 Oct 19. PMID: 17052374
27. [Amoeboid form of Blastocystis hominis - a detailed ultrastructural insight.](#) Tan TC, Suresh KG. Parasitol Res. 2006 Nov;99(6):737-42. Epub 2006 Jul 1. PMID: 16816959
28. [\[Emphasizing of Blastocystis hominis on culture media\].](#) Eniko BH, Ilona C, Brigitta BH, Doina B, Eniko F. Bacteriol Virusol Parazitol Epidemiol. 2004 Jan-Jun;49(1-2):51-2. Romanian. PMID: 16752753
29. [Predominance of amoeboid forms of Blastocystis hominis in isolates from symptomatic patients.](#) Tan TC, Suresh KG. Parasitol Res. 2006 Feb;98(3):189-93. Epub 2005 Dec 2. PMID: 16323025
30. [Viable blastocystis cysts in Scottish and Malaysian sewage samples.](#) Suresh K, Smith HV, Tan TC. Appl Environ Microbiol. 2005 Sep;71(9):5619-20. PMID: 16151162
31. [The effects of extracts from anti-diarrheic Thai medicinal plants on the in vitro growth of the intestinal protozoa parasite: Blastocystis hominis.](#) Sawangjaroen N, Sawangjaroen K. J Ethnopharmacol. 2005 Apr 8;98(1-2):67-72. PMID: 15763365
32. [In vitro susceptibility of Blastocystis hominis isolated from patients with irritable bowel syndrome.](#) Yakoob J, Jafri W, Jafri N, Islam M, Asim Beg M. Br J Biomed Sci. 2004;61(2):75-7. PMID: 15250669

This document is **Hyperlinked**  
Just click on any heading to see the Pubmed abstract

33. [Comparison of methods for detecting \*Blastocystis hominis\*](#). Suresh K, Smith H. Eur J Clin Microbiol Infect Dis. 2004 Jun;23(6):509-11. Epub 2004 May 28. PMID: 15168139
34. [Polypeptides associated with in vitro cyst formation of \*Blastocystis hominis\*](#). Init I, Mak JW, Top S, Zulhainan Z, Prummongkol S, Nissapatorn V, Wan-Yusoff WS, Anuar AK. Southeast Asian J Trop Med Public Health. 2003 Dec;34(4):727-32. PMID: 15115079
35. [In-vitro cultivation: a sensitive method for detecting \*Blastocystis hominis\*](#). Leelayoova S, Taamasri P, Rangsin R, Naaglor T, Thathaisong U, Mungthin M. Ann Trop Med Parasitol. 2002 Dec;96(8):803-7. PMID: 12625935
36. [Methods for cultivation of luminal parasitic protists of clinical importance](#). Clark CG, Diamond LS. Clin Microbiol Rev. 2002 Jul;15(3):329-41. Review. PMID: 12097242
37. [Blastocystis hominis modulates immune responses and cytokine release in colonic epithelial cells](#). Long HY, Handschack A, König W, Ambrosch A. Parasitol Res. 2001 Dec;87(12):1029-30. PMID: 11763434
38. [Blastocystis hominis: A simplified, high-efficiency method for clonal growth on solid agar](#). Tan KS, Ng GC, Quek E, Howe J, Ramachandran NP, Yap EH, Singh M. Exp Parasitol. 2000 Sep;96(1):9-15. PMID: 11038315
39. [Blastocystis hominis: origin and significance of vacuolar and granular forms](#). Vdovenko AA. Parasitol Res. 2000 Jan;86(1):8-10. PMID: 10669129
40. [Blastocystis sp. from pigs: ultrastructural changes occurring during polyxenic cultivation in Iscove's modified Dulbecco's medium](#). Pakandl M. Parasitol Res. 1999 Aug;85(8-9):743-8. PMID: 10431743
41. [In vitro encystation and excystation of \*Blastocystis ratti\*](#). Chen XQ, Singh M, Howe J, Ho LC, Tan SW, Yap EH. Parasitology. 1999 Feb;118 ( Pt 2):151-60. PMID: 10028529
42. [Cytopathic effects of \*Blastocystis hominis\* on Chinese hamster ovary \(CHO\) and adenocarcinoma HT29 cell cultures](#). Walderich B, Bernauer S, Renner M, Knobloch J, Burchard GD. Trop Med Int Health. 1998 May;3(5):385-90. PMID: 9623944
43. [Glycerol with fetal calf serum--a better cryoprotectant for \*Blastocystis hominis\*](#). Suresh K, Init I, Reuel PA, Rajah S, Lokman H, Khairul Anuar A. Parasitol Res. 1998;84(4):321-2. No abstract available. PMID: 9569099
44. [In vitro encystation of \*Blastocystis hominis\*: a kinetics and cytochemistry study](#). Villar J, Carbajal JA, Lanuza MD, Muñoz C, Borrás R. Parasitol Res. 1998;84(1):54-8. PMID: 9491427

This document is **Hyperlinked**  
Just click on any heading to see the Pubmed abstract

45. [Significantly increased IgG2 subclass antibody levels to Blastocystis hominis in patients with irritable bowel syndrome.](#) Hussain R, Jaferi W, Zuberi S, Baqai R, Abrar N, Ahmed A, Zaman V. Am J Trop Med Hyg. 1997 Mar;56(3):301-6. PMID: 9129532
46. [Experimental Blastocystis hominis infection in laboratory mice.](#) Moe KT, Singh M, Howe J, Ho LC, Tan SW, Chen XQ, Ng GC, Yap EH. Parasitol Res. 1997;83(4):319-25. PMID: 9134552
47. [Description of an improved method for Blastocystis hominis culture and axenization.](#) Lanuza MD, Carbajal JA, Villar J, Borrás R. Parasitol Res. 1997;83(1):60-3. PMID: 9000236
48. [Clonal growth of Blastocystis hominis in soft agar with sodium thioglycollate.](#) Tan SW, Singh M, Thong KT, Ho LC, Moe KT, Chen XQ, Ng GC, Yap EH. Parasitol Res. 1996;82(8):737-9. PMID: 8897510
49. [Axenic culture of reptilian Blastocystis isolates in monophasic medium and speciation by karyotypic typing.](#) Singh M, Ho LC, Yap AL, Ng GC, Tan SW, Moe KT, Yap EH. Parasitol Res. 1996;82(2):165-9. PMID: 8825212
50. [Colony formation of Blastocystis hominis in soft agar.](#) Tan SW, Singh M, Yap EH, Ho LC, Moe KT, Howe J, Ng GC. Parasitol Res. 1996;82(4):375-7. PMID: 8740557
51. [A comparison of direct microscopy with culture for the diagnosis of Blastocystis hominis.](#) Zman V, Khan KZ. Southeast Asian J Trop Med Public Health. 1994 Dec;25(4):792-3. No abstract available. PMID: 7667737
52. [Diagnosis by faecal culture of Dientamoeba fragilis infections in Australian patients with diarrhoea.](#) Sawangjaroen N, Luke R, Procriv P. Trans R Soc Trop Med Hyg. 1993 Mar-Apr;87(2):163-5. PMID: 8337717
53. [Axenic culture of Blastocystis hominis in Iscove's modified Dulbecco's medium.](#) Ho LC, Singh M, Suresh G, Ng GC, Yap EH. Parasitol Res. 1993;79(7):614-6. No abstract available. PMID: 8278347
54. [\[The cultivation of Blastocystis \(Rhizopoda: Lobosea\) from hens and ducks\].](#) Belova LM. Parazitologiya. 1992 Sep-Oct;26(5):443-7. Russian. PMID: 1297974
55. [Varying incidence of Blastocystis hominis in cultures from faeces of patients with diarrhoea and from healthy persons.](#) Kukoschke KG, Müller HE. Zentralbl Bakteriol. 1992 Jun;277(1):112-8. PMID: 1520961
56. [The in-vitro activity of drugs against Blastocystis hominis.](#) Dunn LA, Boreham PF. J Antimicrob Chemother. 1991 Apr;27(4):507-16. PMID: 1856129

This document is **Hyperlinked**  
Just click on any heading to see the Pubmed abstract

57. [Blastocystis hominis--past and future.](#) Zierdt CH. Clin Microbiol Rev. 1991 Jan;4(1):61-79. Review. PMID: 2004348
58. [Detection of Blastocystis hominis by direct microscopy and culture.](#) Kukoschke KG, Necker A, Müller HE. Eur J Clin Microbiol Infect Dis. 1990 Apr;9(4):305-7. PMID: 2351150
59. [Ultrastructural variation of Blastocystis hominis stocks in culture.](#) Dunn LA, Boreham PF, Stenzel DJ. Int J Parasitol. 1989 Feb;19(1):43-56. PMID: 2707962
60. [Generation time and growth rate of the human intestinal parasite Blastocystis hominis.](#) Zierdt CH, Swan JC. J Protozool. 1981 Nov;28(4):483-5. PMID: 7198685
61. [Blastocystis hominis: improved axenic cultivation.](#) Molet B, Werler C, Kremer M. Trans R Soc Trop Med Hyg. 1981;75(5):752-3. No abstract available. PMID: 7199211
62. [Blastocystis hominis: axenic cultivation.](#) Zierdt CH, Williams RL. Exp Parasitol. 1974 Oct;36(2):233-43. No abstract available. PMID: 4369819
63. [A method of freeing cultures of Entamoeba histolytica from contamination with Blastocystis.](#) SMEDLEY SR. Trans R Soc Trop Med Hyg. 1956 May;50(3):232-3. No abstract available. PMID: 13337906

This document is **Hyperlinked**  
Just click on any heading to see the Pubmed abstract

## Section 10: PCR Detection of Blastocystis (50 studies)

1. [The pathogenic role of different Blastocystis hominis genotypes isolated from patients with irritable bowel syndrome.](#) Fouad SA, Basyoni MM, Fahmy RA, Kobaisi MH. Arab J Gastroenterol. 2011 Dec;12(4):194-200. Epub 2011 Dec 20. PMID: 22305500
2. [Predominance of Blastocystis sp. subtype 4 in rural communities, Nepal.](#) Lee IL, Tan TC, Tan PC, Nanthiney DR, Biraj MK, Surendra KM, Suresh KG. Parasitol Res. 2011 Nov 11. PMID:22076050
3. [BLASTOCYSTIS SUBTYPES IN SYMPTOMATIC AND ASYMPTOMATIC FAMILY MEMBERS AND PETS AND RESPONSE TO THERAPY.](#) Nagel R, Cuttell L, Stensvold CR, Mills PC, Bielefeldt-Ohmann H, Traub RJ. Intern Med J. 2011 Oct 27. doi: 10.1111/j.1445-5994.2011.02626.x. [Epub ahead of print PMID: 22032439
4. [Diversity and host specificity of Blastocystis in syntopic primates on Rubondo Island, Tanzania.](#) Petrášová J, Uzlíková M, Kostka M, Petrželková KJ, Huffman MA, Modrý D. Int J Parasitol. 2011 Sep;41(11):1113-20. Epub 2011 Aug 2. PMID: 21854778
5. [Evaluation of DNA extraction kits for molecular diagnosis of human Blastocystis subtypes from fecal samples.](#) Yoshikawa H, Dogruman-Ai F, Turk S, Kustimur S, Balaban N, Sultan N. Parasitol Res. 2011 Oct;109(4):1045-50. Epub 2011 Apr 16. PMID: 21499752
6. [Development of a new PCR protocol to detect and subtype Blastocystis spp. from humans and animals.](#) Santín M, Gómez-Muñoz MT, Solano-Aguilar G, Fayer R. Parasitol Res. 2011 Jul;109(1):205-12. Epub 2011 Jan 6. PMID:21210149
7. [Development and evaluation of a real-time PCR assay for detection and quantification of blastocystis parasites in human stool samples: prospective study of patients with hematological malignancies.](#) Poirier P, Wawrzyniak I, Albert A, El Alaoui H, Delbac F, Livrelli V. J Clin Microbiol. 2011 Mar;49(3):975-83. Epub 2010 Dec 22. PMID: 21177897
8. [Controlled study on enteropathogens in travellers returning from the tropics with and without diarrhoea.](#) Paschke C, Apelt N, Fleischmann E, Perona P, Walentiny C, Löscher T, Herbinger KH. Clin Microbiol Infect. 2011 Aug;17(8):1194-200. doi: 10.1111/j.1469-0691.2010.03414.x. Epub 2010 Dec 13. PMID: 21054662
9. [Blastocystis hominis and Dientamoeba fragilis in patients fulfilling irritable bowel syndrome criteria.](#) Yakoob J, Jafri W, Beg MA, Abbas Z, Naz S, Islam M, Khan R. Parasitol Res. 2010 Aug;107(3):679-84. Epub 2010 Jun 8. PMID: 20532564
10. [Molecular characterization of Blastocystis isolates from zoo animals and their animal-keepers.](#) Parkar U, Traub RJ, Vitali S, Elliot A, Levecke B, Robertson I, Geurden T, Steele J, Drake B, Thompson RC. Vet Parasitol. 2010 Apr 19;169(1-2):8-17. Epub 2010 Jan 4. PMID: 20089360

This document is **Hyperlinked**  
Just click on any heading to see the Pubmed abstract

11. [PCR-based subtyping of Blastocystis isolates from symptomatic and asymptomatic individuals in a major hospital in Ankara, Turkey.](#) Dogruman-AI F, Yoshikawa H, Kustimur S, Balaban N. Parasitol Res. 2009 Dec;106(1):263-8. Epub 2009 Oct 22. PMID: 19847459
12. [Identification of Blastocystis hominis isolates from asymptomatic and symptomatic patients by PCR.](#) Eroglu F, Genc A, Elgun G, Koltas IS. Parasitol Res. 2009 Nov;105(6):1589-92. Epub 2009 Aug 15. PMID: 19685075
13. [Genetic variability of Blastocystis sp. isolates obtained from cancer and HIV/AIDS patients.](#) Tan TC, Ong SC, Suresh KG. Parasitol Res. 2009 Oct;105(5):1283-6. Epub 2009 Jul 15. PMID: 19603182
14. [Genetic analysis of Blastocystis hominis isolated from symptomatic and asymptomatic human hosts in Egypt.](#) Elwakil HS, Talaat RM. J Egypt Soc Parasitol. 2009 Apr;39(1):99-109. PMID: 19530613
15. [High prevalence of subtype 4 among isolates of Blastocystis hominis from symptomatic patients of a health district of Valencia \(Spain\).](#) Domínguez-Márquez MV, Guna R, Muñoz C, Gómez-Muñoz MT, Borrás R. Parasitol Res. 2009 Oct;105(4):949-55. Epub 2009 May 27. PMID: 19471964
16. [Subtype analysis of Blastocystis isolates from Blastocystis cyst excreting patients.](#) Rene BA, Stensvold CR, Badsberg JH, Nielsen HV. Am J Trop Med Hyg. 2009 Apr;80(4):588-92. PMID: 19346381
17. [Association of Blastocystis subtype 3 and 1 with patients from an Oregon community presenting with chronic gastrointestinal illness.](#) Jones MS, Whipps CM, Ganac RD, Hudson NR, Boorom K Parasitol Res. 2009 Jan;104(2):341-5. Epub 2008 Oct 16. Erratum in: Parasitol Res. 2009 Jan;104(2):491. Boorom, Kenneth [corrected to Boorom, Kenneth]. PMID:
18. [Subtype distribution of Blastocystis isolates from synanthropic and zoo animals and identification of a new subtype.](#) Stensvold CR, Alfellani MA, Nørskov-Lauritsen S, Prip K, Victory EL, Maddox C, Nielsen HV, Clark CG. Int J Parasitol. 2009 Mar;39(4):473-9. Epub 2008 Aug 9. PMID: 18755193
19. [Restriction enzyme digestion analysis of PCR-amplified DNA of Blastocystis hominis isolates.](#) Init I, Foad AL, Fong MY, Yamazaki H, Rohela M, Yong HS, Mak JW. Southeast Asian J Trop Med Public Health. 2007 Nov;38(6):991-7. PMID: 18613539
20. [A possible link between subtype 2 and asymptomatic infections of Blastocystis hominis.](#) Dogruman-AI F, Dagci H, Yoshikawa H, Kurt O, Demirel M. Parasitol Res. 2008 Aug;103(3):685-9. Epub 2008 Jun 5. PMID: 18523804
21. [Detection of Blastocystis from stool samples using real-time PCR.](#) Jones MS 2nd, Ganac RD, Hiser G, Hudson NR, Le A, Whipps CM. Parasitol Res. 2008 Aug;103(3):551-7. Epub 2008 May 17. PMID: 18488250

This document is **Hyperlinked**  
Just click on any heading to see the Pubmed abstract

22. [High prevalence of Blastocystis sp. in pigs reared under intensive growing systems: frequency of ribotypes and associated risk factors.](#) Navarro C, Domínguez-Márquez MV, Garijo-Toledo MM, Vega-García S, Fernández-Barredo S, Pérez-Gracia MT, García A, Borrás R, Gómez-Muñoz MT. Vet Parasitol. 2008 May 31;153(3-4):347-58. Epub 2008 Feb 13. PMID: 18374492
23. [Predominance of subtype 3 among Blastocystis isolates from a major hospital in Singapore.](#) Wong KH, Ng GC, Lin RT, Yoshikawa H, Taylor MB, Tan KS. Parasitol Res. 2008 Mar;102(4):663-70. Epub 2007 Dec 7. PMID: 18064490
24. [Detecting Blastocystis using parasitologic and DNA-based methods: a comparative study.](#) Stensvold CR, Arendrup MC, Jespersgaard C, Mølbak K, Nielsen HV. Diagn Microbiol Infect Dis. 2007 Nov;59(3):303-7. Epub 2007 Oct 29. PMID: 17913433
25. [Direct detection of Blastocystis sp. in human faecal samples and subtype assignment using single strand conformational polymorphism and sequencing.](#) Menounos PG, Spanakos G, Tegos N, Vassalos CM, Papadopoulou C, Vakalis NC. Mol Cell Probes. 2008 Feb;22(1):24-9. Epub 2007 Jul 1. PMID: 17669623
26. [Blastocystis sp. subtype 5: a possibly zoonotic genotype.](#) Yan Y, Su S, Ye J, Lai X, Lai R, Liao H, Chen G, Zhang R, Hou Z, Luo X. Parasitol Res. 2007 Nov;101(6):1527-32. Epub 2007 Jul 30. PMID:17665214
27. [Blastocystis: subtyping isolates using pyrosequencing technology.](#) Stensvold CR, Traub RJ, von Samson-Himmelstjerna G, Jespersgaard C, Nielsen HV, Thompson RC. Exp Parasitol. 2007 Jun;116(2):111-9. Epub 2006 Dec 24. PMID: 17266951
28. [Detection of Blastocystis hominis in unpreserved stool specimens by using polymerase chain reaction.](#) Stensvold R, Brillowska-Dabrowska A, Nielsen HV, Arendrup MC. J Parasitol. 2006 Oct;92(5):1081-7. PMID: 17152954
29. [Direct characterization of Blastocystis from faeces by PCR and evidence of zoonotic potential.](#) Parkar U, Traub RJ, Kumar S, Mungthin M, Vitali S, Leelayoova S, Morris K, Thompson RC. Parasitology. 2007 Mar;134(Pt 3):359-67. Epub 2006 Oct 19. PMID: 17052374
30. [PCR for the identification and differentiation of Histomonas meleagridis, Tetratrichomonas gallinarum and Blastocystis spp.](#) Grabensteiner E, Hess M. Vet Parasitol. 2006 Dec 20;142(3-4):223-30. Epub 2006 Aug 21. PMID: 16920265
31. [Genetic variability of Blastocystis hominis isolates in China.](#) Yan Y, Su S, Lai R, Liao H, Ye J, Li X, Luo X, Chen G. Parasitol Res. 2006 Oct;99(5):597-601. Epub 2006 May 11. PMID: 16688468
32. [PCR fingerprinting of Blastocystis isolated from symptomatic and asymptomatic human hosts.](#) Tan TC, Suresh KG, Thong KL, Smith HV. Parasitol Res. 2006 Sep;99(4):459-65. Epub 2006 Apr 21. PMID: 16628457

This document is **Hyperlinked**  
Just click on any heading to see the Pubmed abstract

33. [DNA barcoding of blastocystis](#). Scicluna SM, Tawari B, Clark CG Protist. 2006 Feb;157(1):77-85. Epub 2006 Jan 23. PMID: 16431158
34. [Analysis of the ITS region and partial ssu and lsu rRNA genes of Blastocystis and Proteromonas lacertae](#). Hoevers JD, Snowden KF. Parasitology. 2005 Aug;131(Pt 2):187-96. PMID: 16145935
35. [Molecular characterization of Blastocystis isolates in the Philippines by riboprinting](#). Rivera WL, Tan MA Parasitol Res. 2005 Jun;96(4):253-7. Epub 2005 May 11. PMID: 15886995
36. [Molecular phylogenies of Blastocystis isolates from different hosts: implications for genetic diversity, identification of species, and zoonosis](#). Noël C, Dufernez F, Gerbod D, Edgcomb VP, Delgado-Viscogliosi P, Ho LC, Singh M, Wintjens R, Sogin ML, Capron M, Pierce R, Zenner L, Viscogliosi E J Clin Microbiol. 2005 Jan;43(1):348-55. PMID: 15634993
37. [The usefulness of short-term in vitro cultivation for the detection and molecular study of Blastocystis hominis in stool specimens](#). Termmathurapoj S, Leelayoova S, Aimpun P, Thathaisong U, Nimmanon T, Taamasri P, Mungthin M. Parasitol Res. 2004 Aug;93(6):445-7. Epub 2004 Jul 9. PMID: 15243800
38. [PCR-based identification of zoonotic isolates of Blastocystis from mammals and birds](#). Yoshikawa H, Abe N, Wu Z. Microbiology. 2004 May;150(Pt 5):1147-51. PMID: 15133074
39. [Genomic polymorphism among Blastocystis isolates and development of PCR-based identification of zoonotic isolates](#). Yoshikawa H, Abe N, Wu Z. J Eukaryot Microbiol. 2003;50 Suppl:710-1. No abstract available. PMID: 14736230
40. [Polymerase chain reaction-based genotype classification among human Blastocystis hominis populations isolated from different countries](#). Yoshikawa H, Wu Z, Kimata I, Iseki M, Ali IK, Hossain MB, Zaman V, Haque R, Takahashi Y. Parasitol Res. 2004 Jan;92(1):22-9. Epub 2003 Nov 4. PMID: 14598169
41. [Molecular comparative studies among Blastocystis isolates obtained from humans and animals](#). Yoshikawa H, Wu Z, Nagano I, Takahashi Y. J Parasitol. 2003 Jun;89(3):585-94. PMID: 12880261
42. [Zoonotic genotypes of Blastocystis hominis detected in cattle and pigs by PCR with diagnostic primers and restriction fragment length polymorphism analysis of the small subunit ribosomal RNA gene](#). Abe N, Wu Z, Yoshikawa H. Parasitol Res. 2003 Jun;90(2):124-8. Epub 2003 Feb 13. PMID: 12756546
43. [Molecular characterization of Blastocystis isolates from primates](#). Abe N, Wu Z, Yoshikawa H. Vet Parasitol. 2003 May 1;113(3-4):321-5. PMID: 12719144
44. [Molecular characterization of Blastocystis isolates from birds by PCR with diagnostic primers and restriction fragment length polymorphism analysis of the small subunit ribosomal RNA](#)

This document is **Hyperlinked**  
Just click on any heading to see the Pubmed abstract

[gene](#). Abe N, Wu Z, Yoshikawa H Parasitol Res. 2003 Mar;89(5):393-6. Epub 2002 Dec 4. PMID: 12632154

45. [Blastocystis elongation factor-1alpha: genomic organization, taxonomy and phylogenetic relationships](#). Ho LC, Armiugam A, Jeyaseelan K, Yap EH, Singh M. Parasitology. 2000 Aug;121 ( Pt 2):135-44. PMID: 11085233
46. [Genomic analysis of Blastocystis hominis strains isolated from two long-term health care facilities](#). Yoshikawa H, Abe N, Iwasawa M, Kitano S, Nagano I, Wu Z, Takahashi Y J Clin Microbiol. 2000 Apr;38(4):1324-30. PMID: 10747102
47. [Strain differences in Blastocystis isolates as detected by a single set of polymerase chain reaction primers](#). Init I, Mak JW, Lokman Hakim S, Yong HS Parasitol Res. 1999 Feb;85(2):131-4. 9934962
48. [Genomic polymorphism among Blastocystis hominis strains and development of subtype-specific diagnostic primers](#). Yoshikawa H, Nagano I, Wu Z, Yap EH, Singh M, Takahashi Y. Mol Cell Probes. 1998 Jun;12(3):153-9. PMID: 9664577
49. [Five subgroups of Blastocystis hominis from symptomatic and asymptomatic patients revealed by restriction site analysis of PCR-amplified 16S-like rDNA](#). Böhm-Gloning B, Knobloch J, Walderich B. Trop Med Int Health. 1997 Aug;2(8):771-8. PMID: 9294547
50. [DNA polymorphism revealed by arbitrary primers polymerase chain reaction among Blastocystis strains isolated from humans, a chicken, and a reptile](#). Yoshikawa H, Nagano I, Yap EH, Singh M, Takahashi Y J Eukaryot Microbiol. 1996 Mar-Apr;43(2):127-30. PMID: 8720942

This document is **Hyperlinked**  
Just click on any heading to see the Pubmed abstract

## Section 11: Blastocystis Treatment Studies and Reviews

1. [Blastocystis: to treat or not to treat...](#) Coyle CM, Varughese J, Weiss LM, Tanowitz HB. Clin Infect Dis. 2012 Jan;54(1):105-10. Epub 2011 Nov 10. PMID: 22075794 [PubMed - in process]
2. [BLASTOCYSTIS SUBTYPES IN SYMPTOMATIC AND ASYMPTOMATIC FAMILY MEMBERS AND PETS AND RESPONSE TO THERAPY.](#) Nagel R, Cuttell L, Stensvold CR, Mills PC, Bielefeldt-Ohmann H, Traub RJ. Intern Med J. 2011 Oct 27. doi: 10.1111/j.1445-5994.2011.02626.x. [Epub ahead of print] PMID: 22032439 [PubMed - as supplied by publisher]
3. [No Advantage For Antibiotic Treatment Over Placebo In Blastocystis Hominis-Positive Children With Recurrent Abdominal Pain.](#) Heyland K, Friedt M, Buehr P, Braegger CP. J Pediatr Gastroenterol Nutr. 2011 Oct 12. [Epub ahead of print] PMID: 22002479 [PubMed - as supplied by publisher]
4. [An unusual case of invasive Blastocystis hominis infection.](#) Janarthanan S, Khoury N, Antaki F. Endoscopy. 2011;43 Suppl 2 UCTN:E185-6. Epub 2011 May 16. No abstract available.
5. [Six ulcerative colitis patients with refractory symptoms co-infective with Blastocystis hominis in China.](#) Tai WP, Hu PJ, Wu J, Lin XC. Parasitol Res. 2011 May;108(5):1207-10. Epub 2010 Nov 23. PMID: 21104272
6. [Association of Blastocystis hominis genetic subtypes with urticaria.](#) Hameed DM, Hassanin OM, Zuel-Fakkar NM. Parasitol Res. 2011 Mar;108(3):553-60. Epub 2010 Oct 5. PMID: 20922413
7. [Blastocystis sp. subtype 2 detection during recurrence of gastrointestinal and urticarial symptoms.](#) Vogelberg C, Stensvold CR, Monecke S, Ditzen A, Stopsack K, Heinrich-Gräfe U, Pöhlmann C. Parasitol Int. 2010 Sep;59(3):469-71. Epub 2010 Apr 2. PMID: 20363362
8. [Clinical efficacy of Saccharomyces boulardii or metronidazole in symptomatic children with Blastocystis hominis infection.](#) Dinleyici EC, Eren M, Dogan N, Reyhanioglu S, Yargic ZA, Vandenplas Y. Parasitol Res. 2011 Mar;108(3):541-5. Epub 2010 Oct 5. PMID: 20922415
9. [Intestinal parasitic infection of immunocompromised children with diarrhoea: clinical profile and therapeutic response.](#) Idris NS, Dwipoerwantoro PG, Kurniawan A, Said M. J Infect Dev Ctries. 2010 Jun 3;4(5):309-17. PMID: 20539063 [Free Article](#)
10. [Symptomatic infection with Blastocystis sp. subtype 8 successfully treated with trimethoprim-sulfamethoxazole.](#) Stensvold CR, Arendrup MC, Nielsen HV, Bada A, Thorsen S. Ann Trop Med Parasitol. 2008 Apr;102(3):271-4. No abstract available. PMID: 18348782

This document is **Hyperlinked**  
Just click on any heading to see the Pubmed abstract

11. [Eradication of Blastocystis carriage with antimicrobials: reality or delusion?](#) Stensvold CR, Smith HV, Nagel R, Olsen KE, Traub RJ. J Clin Gastroenterol. 2010 Feb;44(2):85-90. Review. PMID: 19834337
12. [Blastocystis: unravelling potential risk factors and clinical significance of a common but neglected parasite.](#) Stensvold CR, Lewis HC, Hammerum AM, Porsbo LJ, Nielsen SS, Olsen KE, Arendrup MC, Nielsen HV, Mølbak K. Epidemiol Infect. 2009 Nov;137(11):1655-63. Epub 2009 Apr 27. PMID: 19393117 .
13. [Amoebic liver abscess or is it?](#) Hu KC, Lin CC, Wang TE, Liu CY, Chen MJ, Chang WH. Gut. 2008 May;57(5):627, 683. No abstract available. PMID: 18408101
14. [2 children with acute abdominal pain and diarrhea.](#) Weitzel T. J Pediatr Surg. 2007 Feb;42(2):440; author reply 440-1. No abstract available. PMID: 17270567
15. [Blastocystis hominis--an emerging and imitating cause of acute abdomen in children.](#) Andiran N, Acikgoz ZC, Turkey S, Andiran F. J Pediatr Surg. 2006 Aug;41(8):1489-91. PMID: 16863863
16. [Blastocystis hominis and the evaluation of efficacy of metronidazole and trimethoprim/sulfamethoxazole.](#) Moghaddam DD, Ghadirian E, Azami M. Parasitol Res. 2005 Jun;96(4):273-5. Epub 2005 May 25. PMID: 15915364
17. [Remission of delayed pressure urticaria after eradication of Blastocystis hominis.](#) Cassano N, Scoppio BM, Loviglio MC, Vena GA. Acta Derm Venereol. 2005;85(4):357-8. No abstract available. PMID: 16191864
18. [Effect of nitazoxanide in persistent diarrhea and enteritis associated with Blastocystis hominis.](#) Rossignol JF, Kabil SM, Said M, Samir H, Younis AM. Clin Gastroenterol Hepatol. 2005 Oct;3(10):987-91. PMID: 16234044
19. [\[Blastocystosis: nitazoxanide as a new therapeutic option\].](#) Cimerman S, Ladeira MC, Iuliano WA. Rev Soc Bras Med Trop. 2003 May-Jun;36(3):415-7. Epub 2003 Jul 31. Portuguese. PMID: 12908045
20. [Blastocystis hominis--an emerging cause of diarrhoea in renal transplant recipients.](#) Rao K, Sekar U, Iraivan KT, Abraham G, Soundararajan P. J Assoc Physicians India. 2003 Jul;51:719-21. PMID: 14621046
21. [A placebo-controlled treatment trial of Blastocystis hominis infection with metronidazole.](#) Nigro L, Larocca L, Massarelli L, Patamia I, Minniti S, Palermo F, Cacopardo B. J Travel Med. 2003 Mar-Apr;10(2):128-30. PMID: 12650658

This document is **Hyperlinked**  
Just click on any heading to see the Pubmed abstract

22. [Chronic urticaria and blastocystis hominis infection: a case report.](#) Pasqui AL, Savini E, Saletti M, Guzzo C, Puccetti L, Auteri A. Eur Rev Med Pharmacol Sci. 2004 May-Jun;8(3):117-20. PMID: 15368795
23. [Clinical significance and frequency of Blastocystis hominis in Turkish patients with hematological malignancy.](#) Taşova Y, Sahin B, Koltaş S, Paydaş S. Acta Med Okayama. 2000 Jun;54(3):133-6. PMID: 10925738
24. [Effect of trimethoprim-sulfamethaxazole in Blastocystis hominis infection.](#) Ok UZ, Girginkardeşler N, Balcioğlu C, Ertan P, Pirildar T, Kilimcioğlu AA. Am J Gastroenterol. 1999 Nov;94(11):3245-7. PMID: 10566723
25. [\[Blastocystis hominis infection: a case report\].](#) Antonelli F, Cantelli L, De Maddi F, Lamba M. Minerva Pediatr. 1996 Dec;48(12):571-3. Italian. PMID: 9091775
26. [Invasive Blastocystis hominis infection in a child.](#) al-Tawil YS, Gilger MA, Gopalakrishna GS, Langston C, Bommer KE. Arch Pediatr Adolesc Med. 1994 Aug;148(8):882-5. No abstract available. PMID: 8044274
27. [Urticaria by Blastocystis hominis. Successful treatment with paromomycin.](#) Armentia A, Méndez J, Gómez A, Sanchís E, Fernández A, de la Fuente R, Sánchez P. Allergol Immunopathol (Madr). 1993 Jul-Aug;21(4):149-51. PMID: 8237719
28. [Blastocystis hominis in inflammatory bowel disease.](#) Nagler J, Brown M, Soave R. J Clin Gastroenterol. 1993 Mar;16(2):109-12. PMID: 8463612
29. [Prevalence and characteristics of Blastocystis hominis infection in children.](#) O'Gorman MA, Orenstein SR, Proujansky R, Wadowsky RM, Putnam PE, Kocoshis SA. Clin Pediatr (Phila). 1993 Feb;32(2):91-6. PMID: 8432086 65.
30. [Blastocystis hominis in hospital employees.](#) Grossman I, Weiss LM, Simon D, Tanowitz HB, Wittner M. Am J Gastroenterol. 1992 Jun;87(6):729-32. PMID: 1590309
31. [Blastocystis hominis complicating ulcerative colitis.](#) Jeddy TA, Farrington GH. J R Soc Med. 1991 Oct;84(10):623. No abstract available. PMID: 1744851
32. [Clinical report of Blastocystis hominis infection in children.](#) Zaki M, Daoud AS, Pugh RN, al-Ali F, al-Mutairi G, al-Saleh Q. J Trop Med Hyg. 1991 Apr;94(2):118-22. PMID: 2023289
33. [The therapy of blastocystosis.](#) Garavelli PL. J Chemother. 1991 Jan;3 Suppl 1:245-6. PMID: 12041778
34. [Blastocystis hominis--past and future.](#) Zierdt CH. Clin Microbiol Rev. 1991 Jan;4(1):61-79. Review. PMID: 2004348 74.

This document is **Hyperlinked**  
Just click on any heading to see the Pubmed abstract

35. [Blastocystis hominis treatable cause of diabetic diarrhea.](#) Sheehan JP, Ulchaker MM. Diabetes Care. 1990 Aug;13(8):906-7. No abstract available. PMID: 2209335
36. [Blastocystis hominis infection: signs and symptoms in patients at Wilford Hall Medical Center.](#) Wilson KW, Winget D, Wilks S. Mil Med. 1990 Sep;155(9):394-6. PMID: 2120622 77.
37. [Blastocystis hominis in two children of one family.](#) Bratt DE, Tikasingh ES. West Indian Med J. 1990 Mar;39(1):57-8. PMID: 2333700
38. [Infective arthritis due to Blastocystis hominis.](#) Lee MG, Rawlins SC, Didier M, DeCeulaer K. Ann Rheum Dis. 1990 Mar;49(3):192-3. PMID: 2322029
39. [Blastocystosis: a new disease in the acquired immunodeficiency syndrome?](#) Garavelli PL, Scaglione L, Bicocchi R, Libanore M. Int J STD AIDS. 1990 Mar;1(2):134-5. PMID: 2092790
40. [Clinical significance of Blastocystis hominis.](#) Qadri SM, al-Okaili GA, al-Dayel F. J Clin Microbiol. 1989 Nov;27(11):2407-9. PMID: 2808664
41. [Epidemiology and clinical features associated with Blastocystis hominis infection.](#) Kain KC, Noble MA, Freeman HJ, Barteluk RL. Diagn Microbiol Infect Dis. 1987 Dec;8(4):235-44. PMID: 3449317
42. [\[Blastocystis hominis in feces. An assessment of 56 cases\].](#) Krech T, Nguyen XM, Spicher H. Schweiz Med Wochenschr. 1990 May 19;120(20):742-4. German. PMID: 2349459
43. [\[Blastocystis hominis and abdominal pain in childhood\].](#) Fleta Zaragoza J, Clavel Parrilla A, Castillo García FJ, Bueno Lozano M, Sarría Chueca A. An Esp Pediatr. 1993 Jan;38(1):13-6. Review. Spanish. PMID: 8439071
44. [Terminal ileitis associated with Blastocystis hominis infection.](#) Tsang TK, Levin BS, Morse SR. Am J Gastroenterol. 1989 Jul;84(7):798-9. PMID: 2741890
45. [Association of Blastocystis hominis with signs and symptoms of human disease.](#) Sheehan DJ, Raucher BG, McKittrick JC. J Clin Microbiol. 1986 Oct;24(4):548-50. PMID: 3771743
46. [Blastocystis hominis: pathogen or fellow traveler?](#) Markell EK, Udkow MP. Am J Trop Med Hyg. 1986 Sep;35(5):1023-6. PMID: 3766850 42.

This document is **Hyperlinked**  
Just click on any heading to see the Pubmed abstract

## Section 12: Studies Identifying Percent of Blastocystis Monoinfections that are Symptomatic

1. [A study on \*\*Blastocystis\*\* hominis in food-handlers: diagnosis and potential pathogenicity.](#) Fathy FM. J Egypt Soc Parasitol. 2011 Aug;41(2):433-53. PMID: 21980782
2. [Seasonal prevalence of intestinal parasites in the United States during 2000.](#) Amin OM. Am J Trop Med Hyg. 2002 Jun;66(6):799-803. PMID: 12224595
3. [Polymerase chain reaction-based genotype classification among human \*\*Blastocystis\*\* hominis populations isolated from different countries.](#) Yoshikawa H, Wu Z, Kimata I, Iseki M, Ali IK, Hossain MB, Zaman V, Haque R, Takahashi Y. Parasitol Res. 2004 Jan;92(1):22-9. Epub 2003 Nov 4. PMID: 4598169

This document is **Hyperlinked**  
Just click on any heading to see the Pubmed abstract