

T-SPOT[®] TB Publications

Selected T-SPOT[®] TB test publications, by area of interest, up to October 31, 2009.
List prepared December 15th, 2009.

Category	Description	Nos.	Publication
Utility in active disease / sensitivity	T-SPOT. TB result compared to eventual diagnosis by smear or culture. Included patients infected with <i>M. bovis</i> and <i>M. africanum</i> . T-SPOT. TB sensitivity = 97.2%. [CI 90.3 – 99.7%].	72	Meier <i>et al</i> Eur J Microbiol Infect Dis 2005; 24: 529-536
	T-SPOT. TB sensitivity was 96.6% in subjects with culture confirmed active TB. T-SPOT. TB sensitivity was 100% in 29 of these subjects who were immunosuppressed.	87	Lee <i>et al</i> . ERJ 2006; 28: 24-30
	Sensitivity of T-SPOT. TB test in active (AFB smear or culture +ve) or probable (clinical factors consistent with TB and improved with treatment) TB was 90.3% and not affected by CD4 count.	30	Clark <i>et al</i> . Clin. Exp. Imm. 2007; 150(2):238-44
	T-SPOT. TB test ruled out active disease in 4 suspects allowing clinicians to focus on alternative diagnoses.	4	van Leeuwen <i>et al</i> ERJ 2007; 29: 605-607
	T-SPOT. TB sensitivity was 92% in subjects with active disease confirmed by culture from sputum or by the presence of caseating granuloma in lung tissue obtained by needle biopsy.	140	Kang <i>et al</i> Chest. 2007 Sep;132(3):959-65
	T-SPOT. TB test was positive in 94% of subjects with confirmed and probably extra-pulmonary TB	32	Kim <i>et al</i> . Arch Intern Med. 2007; 167;20:2255-2259
	T-SPOT. TB sensitivity was 94% in immunocompetent subjects and 95% in the immunosuppressed. 42% had extra-pulmonary TB.	186	Kim <i>et al</i> . Am J Med 2009; 122, 189-195
	T-SPOT. TB test was carried out on subjects with culture confirmed TB within 2 weeks of initiation of anti-TB treatment. 57/58 (98%) were positive by T-SPOT. TB test.	58	Janssens <i>et al</i> ERJ 2007; 30(4):722-8
	T-SPOT. TB sensitivity was 94% in subjects with culture confirmed active TB.	32	Dominguez <i>et al</i> Clin Vacc Immunol 2008; 15:168-71
T-SPOT. TB sensitivity was 94.1% in subjects with culture confirmed active TB	270	Chee <i>et al</i> J Clin Microbiol. 2008; 46(6):1935-40	
Specificity	The specificity of T-SPOT. TB test in individuals judged to be at low risk for TB infection was 98.9%	354	Bienek <i>et al</i> . IJTL. 2009 Nov;13(11):1416-21
	13/14 subjects with confirmed <i>M. Avium</i> infection were -ve by T-SPOT. TB test. 1 borderline +ve was -ve when re-tested.	14	Adams <i>et al</i> Sc. J Inf. Dis.. 2008;40(3):196-203.
	Asymptomatic patients were screened for latent TB infection. All were negative by T-SPOT. TB test giving 100% specificity.	47	Clark <i>et al</i> . Clin. Exp. Imm. 2007; 150(2):238-44
	Healthy healthcare workers in Germany were screened with T-SPOT. TB test. Only one was +ve by T-SPOT. TB test. He was a radiologist, exposed to infected patients for 35 years.	95	Barsegian <i>et al</i> . J of Hospital Inf 2008; 69:69-76
LTBI exposure studies	Potential nosocomial outbreak of TB in an institution for the mentally ill and alcoholics. Varying degrees of exposure to the infectious source case (reactivated TB). T-SPOT. TB test was more closely related to exposure than TST. T-SPOT. TB test not affected by BCG vaccination status.	91	Zellweger <i>et al</i> IJTL. 2005; 9(11):1242-1247
	Contact tracing study in a hematology chemotherapy unit. T-SPOT. TB results correlated to exposure and age of subjects, unlike TST. T-SPOT. TB indeterminate levels were 4%. T-SPOT. TB test was not affected by WBC count.	138	Piana <i>et al</i> . ERJ 2006 28: 31-34
	Following exposure to an index case working at a check-out counter of a supermarket, contacts were tested with TST, Cellestis In-Tube and T-SPOT. TB test. 81/785 (10.3%) subjects were +ve by Cellestis In-Tube, 142/759 (18.7%) subjects were +ve by T-SPOT. TB test. 23/782 (2.9%) subjects were T-SPOT. TB indeterminate. No +ve control was used for Cellestis In-Tube.	782	Arend <i>et al</i> . AJRCCM 2007; 15;175(6):618-27
	T-SPOT. TB results were more closely correlated to exposure than TST and were not affected by BCG	96	Brodie <i>et al</i> Chest 2008; 133:869-874
Screening at-risk groups	Radiology healthcare workers in Germany were tested with T-SPOT. TB test. 1/95 (1%) was positive by T-SPOT. TB test. He was a radiology worker with 35 years exposure to TB patients. There were no indeterminate results. 32/95 (34%) were false positive TST results.	95	Barsegian <i>et al</i> . Journal of Hospital Infection 2008; 69(1):69-76
	Exposed health care workers and healthy controls were tested with TST and the T-SPOT. TB assay. 27/155 of the exposed were positive by TST. Only 3 of these were +ve by T-SPOT. TB test. All controls were -ve by T-SPOT. TB test but 3 were TST +ve.	218	Storla <i>et al</i> . BMC Infectious Diseases 2009, 9:60
	Final year medical students in Singapore were tested with T-SPOT. TB test and TST. Positivity was 4% for T-SPOT. TB test and 86% for TST.	207	Chee <i>et al</i> . Infect Control. 2009 Sep;30(9):870-5.
	Undocumented immigrants in Switzerland were tested with T-SPOT. TB assay. T-SPOT. TB assay was +ve in 24/125 (19.2%). 2 of these were found to have active disease.	128	Bodenmann <i>et al</i> . BMC Infect Dis. 2009;9(1):34
Pediatric testing	TST and T-SPOT. TB test were run in the following 3 groups of children aged 4 months to 15 years; 28 with culture confirmed TB, 23 with NTM lymphadenitis, 22 with lung disease other than TB. Specificity for TST was 58% and for T-SPOT. TB assay was 98%. Sensitivity for TST was 100% and for T-SPOT. TB assay was 93%.	73	Detjen <i>et al</i> CID 2007; 1;45(3):322-8
	Children from a junior school were screened with T-SPOT. TB assay and chest radiography after exposure to a child with sputum smear negative pulmonary tuberculosis. T-SPOT. TB test was +ve in 85/200 (42.5%) of children. Infection rates determined by T-SPOT. TB assay were higher in the class of the index case (79%) than among the other pupils at the school (35%) (P<0.01).	200	Paranjothy <i>et al</i> BMJ, 2008; 337: 573-574

Immunosuppressed	Known cohort of 29 HIV+ve subjects and 19 healthy controls with unknown TB status. Mostly immigrants with some TB exposure. T-SPOT. <i>TB</i> test produced reportable results in all but 1 subject, where +ve control was below cut-off. 3 cases of LTBI were identified. T-SPOT. <i>TB</i> results were not affected by CD4 levels.	48	Dheda <i>et al.</i> AIDS 2005; 19;2038-41
	50/201 HIV+ve subjects were T-SPOT. <i>TB</i> test +ve. 33 of these had a CD4 count < 100. There was no correlation between antigen or +ve control response and CD4 count.	201	Clark <i>et al.</i> Clin. Exp. Imm. 2007. 150(2):238-44
	Case study describing diagnosis of active TB by T-SPOT. <i>TB</i> test following TNF alpha therapy. All other tests including nucleic acid amplification were initially -ve.	1	Lange <i>et al.</i> Nature Clin. Pract. Rheum. 2007; 3(9):528-34
	Rheumatic disease patients were tested with T-SPOT. <i>TB</i> assay and TST. A history of BCG was associated with TST+ve/T-SPOT. <i>TB</i> test -ve discordance. Steroid use was associated with TST-ve/T-SPOT. <i>TB</i> test +ve discordance.	70	Vassilopoulos <i>et al.</i> The Journal of Rheumatology 2008;35 (7): 1271-6
	Psoriasis patients were tested with the T-SPOT. <i>TB</i> test and TST. T-SPOT. <i>TB</i> test was +ve in 20% of patients tested. TST was +ve in 40% of patients tested. +ve T-SPOT. <i>TB</i> test was correlated with probable LTBI, a chest X-ray suggestive of LTBI and history of exposure.	50	Laffitte <i>et al</i> Br J Dermatol. 2009 Oct;161(4):797-800
	More patients were T-SPOT. <i>TB</i> +ve than TST +ve or the expert panel in patients with chronic renal infection undergoing hemodialysis. T-SPOT. <i>TB</i> positivity was associated with TB risk factors. TST was only associated with BCG vaccination.	203	Passalent <i>et al</i> Clin J Am Soc Nephrol 2007; 2(1):68-73
	Patients with various hematology disorders had been in contact with an infectious TB case. Subjects were split into a cohort with normal WBC count and a cohort with abnormal WBC count. T-SPOT. <i>TB</i> positivity was same in both groups (45%), while TST was 26% and 15%.	138	Piana <i>et al.</i> Eur Respir J 2006; 28: 31–34.
	197 immunosuppressed, hematological patients who were contacts of 2 infectious TB cases were tested with TST and T-SPOT. <i>TB</i> test. A control group of 324 community contacts of infectious TB cases were also tested. T-SPOT. <i>TB</i> positivity was similar in both groups (51% and 35%) whereas TST positivity was considerably lower in the immunosuppressed group (85% vs 17%).	421	Piana <i>et al.</i> NEW MICROBIOLOGICA, 2007; 30:286-90
	Patients with chronic inflammatory arthritis were tested with T-SPOT. <i>TB</i> assay, Cellestis Gold (2G) assay, and TST. 14/143 (9.8%) patients had a +ve T-SPOT. <i>TB</i> assay result, 5/70 (7.1%) patients had a +ve Cellestis Gold result, 27/150 (18.0%) patients had a +ve TST.	150	Martin <i>et al.</i> Ann Rheum Dis. 2009
	Patients awaiting liver transplantation were tested with T-SPOT. <i>TB</i> assay and the TST. T-SPOT. <i>TB</i> assay was repeatedly +ve in 4/48 (8.3%) of the patients. TST was +ve in 6/47 (12.8%) of the patients.	48	Lindemann M. <i>et al</i> Hum Immunol. 2009; 70 (1):24-8
T-SPOT. <i>TB</i> results not affected in subjects with silicosis or old age.	134	Leung <i>et al</i> ERJ 2008; 31: 266–272	
Subjects with hematological disorders undergoing chemotherapy see Piana <i>et al</i> in LTBI exposure studies			
HIV infected subjects see Leidl <i>et al</i> in IGRA comparisons			
Non-blood samples	Sputum -ve TB suspects were tested by TST, NAAT, and T-SPOT. <i>TB</i> test using both blood and bronchoalveolar lavage (BAL). Sensitivity and specificity were; BAL T-SPOT. <i>TB</i> test - 91% & 80%, PBMC T-SPOT. <i>TB</i> test - 92% & 48%, TST - 65% & 81% NAAT - 29% & 97%	31	Jafari. <i>et al</i> Am. J. Respir. Crit. Care Med. 2009
Effect of treatment	10/10 patients with confirmed pleural TB were +ve by PBMC and T-SPOT. <i>TB</i> test using pleural effusion (PE). In 21 controls 7 (33%) were +ve by PBMC T-SPOT. <i>TB</i> test and were considered to have LTBI. 5 (24%) were +ve by PE T-SPOT. <i>TB</i> test.	226	Losi <i>et al</i> ERJ 2007; 30 1173 - 1179
	The sensitivity and specificity for the diagnosis of active pleural TB were 95% and 76% when performed on PE using the T-SPOT. <i>TB</i> test.		
Cost effectiveness	Contacts of smear or culture +ve subjects were tested with T-SPOT. <i>TB</i> assay and TST. Following completion of LTBI therapy 38% reverted to a -ve T-SPOT. <i>TB</i> result. CFP 10 spot declined considerably more than ESAT-6.	89	Chee <i>et al.</i> AJRCCM 2007; 175(3):282-7
	Subjects with active TB tested during initial 2 weeks of anti-TB treatment, at the end of treatment, and 6 months after the end of treatment. T-SPOT. <i>TB</i> test spot counts declined during treatment with little change in clinical positivity.	267	Bosshard <i>et al.</i> Respir Med. 2009;103(1):30
	Results from contact tracing clinic obtained over a one year period and then analysed to determine most cost-effective TB control strategy. Costs of the T-SPOT. <i>TB</i> test only strategy were much less than the TST only strategy. Costs were lowest in the strategy where TST was used first followed by T-SPOT. <i>TB</i> test in those that were +ve. Study did not take into account false +ve who would be missed by TST.		Wrighton-Smith P, and Zellweger J-P. ERJ 2006; 28: 45–50
Using a Markov model T-SPOT. <i>TB</i> test based screening is cost effective compared to no screening or running TST based control programs. The use of T-SPOT. <i>TB</i> test, alone or in combination with TST, greatly reduces the number of contacts treated to prevent one TB case.	218	Diel <i>et al.</i> ERJ 2007; 30(2):321-32	
IGRA Comparisons	Comparison of T-SPOT. <i>TB</i> test with Cellestis Gold and TST in a cohort of subjects with active TB disease. Sensitivity in active TB disease; T-SPOT. <i>TB</i> test 96.6%, Gold 70%, TST 67%.	383	Lee <i>et al.</i> ERJ 2006 28: 24–30.
	Comparison of T-SPOT. <i>TB</i> test and Cellestis Gold in routine use. In active disease 83% were +ve by T-SPOT. <i>TB</i> test, 74% were +ve by Gold. 3% were indeterminate by T-SPOT. <i>TB</i> test, 11% were indeterminate by Gold.	369	Ferrara <i>et al.</i> Lancet 2006; 367: 1328–34
	120 liver transplant candidates, 116 HIV+ve persons and 95 patients with hematologic malignancies were tested with the T-SPOT. <i>TB</i> test, In-Tube test and the TST. 3.5% T-SPOT. <i>TB</i> assay results were indeterminate. 7.3% Cellestis In-Tube results were indeterminate	23	Richeldi <i>et al.</i> Chest.2009 Jul;136(1):198-204
	Comparison of T-SPOT. <i>TB</i> test, Cellestis and an in-house elispot in subjects with active TB. Sensitivity was; T-SPOT. <i>TB</i> test 91%, Cellestis 83%.	128	Goletti <i>et al</i> Clin Micro Inf 2006 12;6:544.
	HIV infected subjects were tested by Cellestis In-Tube and T-SPOT. <i>TB</i> test. In those with active TB 90% were +ve by T-SPOT. <i>TB</i> test, 68% were +ve by In-Tube. IFN levels were correlated to CD4 cells in the In-Tube test but not in the T-SPOT. <i>TB</i> test.	19	Leidl ERJ 2009
	Subjects were tested by Cellestis In-Tube, T-SPOT. <i>TB</i> test and TST. All were -ve. When re-tested 6 weeks later all subjects remained T-SPOT. <i>TB</i> -ve but 3 were now +ve by In-Tube. There was no known exposure.	9	Naseer A, Naqvi S and Kampmann B. ERJ 2007; 29(6):1282-3
	In active disease T-SPOT. <i>TB</i> test was more sensitive than Cellestis In-Tube (95% Vs 82%). In contact tracing and screening there were more +ve results for T-SPOT. <i>TB</i> test than In-Tube (44% Vs 36%)	29	Dominguez <i>et al</i> Clin & Vac Imm 2008; 15(1):168-171
	TB suspects with indeterminate Cellestis Gold (2G) results were tested with T-SPOT. <i>TB</i> assay. T-SPOT. <i>TB</i> test provided results in 26 of these 40 patients (65.0%). 6/40 (15.0%) of these were +ve and 20/40 (50.0%) were -ve.	40	Kobashi <i>et al</i> , Int Med 2009; 48(3):137-42

Abbreviations: TST – Tuberculin Skin Test, , LTBI – Latent Tuberculosis infection, , NAAT – nucleic acid amplification test. T-SPOT and the Oxford Immunotec logo are trademarks of Oxford Immunotec Limited