Toll-like receptor 1 (TLR1) recognises lipopeptides with TLR2, and affects immune response to *Mycobacterium tuberculosis* infection. Here, we report results of the first case-control paediatric study of the *TLR1* single-nucleotide polymorphisms and susceptibility to tuberculosis (TB). A paediatric case-control study enrolled 340 TB patients and 366 healthy controls, all Han Chinese from North China. Significant differences of the allelic and genotypic distributions of rs5743618 in *TLR1* gene were observed between TB group and control group and, G allele of rs5743618 was associated with increased risk for TB (OR: 2.40, 95% CI: 1.41–4.07, p = 0.0009). In addition, after stimulated with inactivated lysate of *Mycobacterium tuberculosis* strain H37Rv, whole blood samples from children with the rs5743618 GT genotypes showed a decreased level of Interleukin-12p40 (IL-12p40), Tumour Necrosis Factor-a (TNF-a) and CXC chemokine ligand 10 (CXCL10) production. To conclude, *TLR1* rs5743618 G allele was found associated to susceptibility to TB in Han Chinese paediatric population. *TLR1* rs5743618-GT genotype carriers may have reduced immune response to MTB infection although further study is warranted to test this conclusion.

PS-327 PARENTS: THE BEST PARTNER IN PAIN MANAGEMENT

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Introduction Infants in hospital experience pain regularly. It is an important nursing task to observe parameters of pain, because an infant is not able to express itself verbally. The question arises in which way and to what extent parents can play a role in recognising and diminishing pain experienced by their child.
Method Involvement of parents in pain management has been investigated by means of a literature search and a survey among nurses. We also explored how parents' involvement could be increased in an effective way.
Results Research shows that parents' ínvolvement in pain management is effective. When parents were given an active role, there was a quicker response to pain signals and the child experienced less pain.

Parents' involvement is also feasible. A structured method of providing information increased knowledge of parents. In addition to oral information, demonstrations and videos were of extra value. However, in daily practice parents' involvement in pain management is limited. Parents did not always receive oral (55%) or written (4%) information about pain management.

Nurses indicated more parents' involvement than is experienced by parents themselves.

The survey showed that 96% of nurses believe that parents are actively involved in pain recognition and 85% thinks that parents play an active role in pain reduction. However, only 53% of the nurses think that parents are actually able to decrease pain.
Conclusion Parents' participation in pain recognition and pain reduction is effective. Parents can be trained by means of structured methods of information, demonstrations and videos.

Abstract PS-328 Table 1 $^{+}$T cell epitopes from PPE proteins of M.tuberculosis predicted by using Net.4 Server

Alleles of Class I HLA	PPE8 (Rv0355c)	PPE12 (Rv0755c)	PPE21 (Rv1548c)	PPE39 (Rv2353c)	PPE62 (Rv3533c)	SB/WB (Total)
	3292[1]	637	670	346	574	
HLA-A*1101	4/9[2]	1/1	0/1	0/2	0/1	5/14 (19)
HLA-A*2402	1/7	0/1	0/3	1/0	0/1	2/12 (14)
HLA-A*0201	20/43	8/4	3/9	2/1	1/8	34/65 (99)
HLA-B*4601	0/2	0/0	0/1	0/0	0/1	0/4 (4)
HLA-B*4001	5/3	1/1	1/2	0/0	0/2	7/8 (15)
HLA-B*5101	0/6	0/0	0/1	0/0	0/1	0/8 (8)
SB/WB (Total)	30/70 (100)	10/7 (17)	4/17 (21)	3/3 (6)	1/14 (15)	48/111 (159)

PS-328 PREDICTION OF HUMAN PROMISCUOUS MHC CLASS I RESTRICTED CD8^{+} T-CELL EPITOPES IN THE PPE PROTEIN FAMILY OF MYCOBACTERIUM TUBERCULOSIS: A COMPUTATIONAL APPROACH

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Background and aims Tuberculosis (TB), caused by infection with Mycobacterium tuberculosis, is a major cause of morbidity and mortality worldwide. Although the wide use of Mycobacterium bovis bacille Calmette-Guérin (BCG), the true effectiveness of BCG vaccine has been debated for decades. Others, the sensitivity of both tuberculin skin test and IFN-γ-release assays is suboptimal, and none of these tests distinguish between latent infection and active disease. So, there is a pressing need to detect new TB antigens to develop effective vaccines capable of activating the immune responses relevant for protection and to set up sensitive immunological tests that may improve the identification of latent TB.
Methods In this study, through database access to the DNA and protein sequences of PPE proteins and the use of bioinformatics programs, including SignalP4.1 server, SecretomeP 2.0 server, DAS server and NetMHC3.4 server, promiscuous epitope peptides were identified.
Results We identified four promiscuous epitope peptides. Those four peptides can bind to more than two HLA molecules. Three peptides were obtained from PPE8 protein and one from PPE12 protein. PPE8 might turn out as a useful reagent for TB subunit vaccines and diagnostic antigens.

Abstract PS-328 Table 2 Distribution of promiscuous^{+}T cell epitopes

Peptide	Proteins on which the epitope polypeptide located	Aminoacid sequences of epitope polypeptide	Sites of epitope polypeptide (Length)	Alleles of Class HLA-I to which the epitope polypeptide binded
p1	PPE8 (Rv0355c)	RLAAAAFEAALAATVHPA	P90–107 (18aa)	HLA-A*0201, HLA-B*4001
p2	PPE8 (Rv0355c)	GTFTVHGFRFPEITGDIFLIGIPFNA	P1760–1785 (26aa)	HLA-A*1101, HLA-A*0201, HLA-B*4001
p3	PPE8 (Rv0355c)	ALGVTHFSVGPIIVPR	P2261–2276 (16aa)	HLA-A*1101, HLA-A*0201
p4	PPE12 (Rv0755c)	FEEALAGVVHPA	P97–108 (12aa)	HLA-A*0201, HLA-B*4001