Supplementary Materials: The following are available online at www.mdpi.com/xxx/s1,

Table S1: Study inclusion and exclusion criteria

Inclusion criteria	
1.	Male or female aged 18-55 years inclusive.
2.	Able to understand and give informed consent to participate.
3.	Participants with either; a history of recovery following hospitalisation with confirmed, culture-positive, cutaneous *B. anthracis* infection, or a history of vaccination in accordance with the UK schedule for the Anthrax Vaccine Precipitated (AVP) vaccine.
Exclusion criteria	
1.	Subjects with known or suspected immunodeficiency.
2.	Presence of any clinically significant medical condition or prescribed drug deemed by the study doctor to make the participant unsuitable for the study.
3.	History or evidence of drug abuse, including a positive urine drug screen (for Cocaine, Amphetamines, Benzodiazepines, Methamphetamines, Tricyclics, Methadone, Barbiturates, Cannabis, Morphine).
4.	Positive test for human immunodeficiency virus (HIV), and/or hepatitis B and/or hepatitis C.
5.	Donation of blood or blood products for a period of 4 weeks prior to participation in the study. History of receiving blood or plasma transfusions, or pooled gamma-globulin in the previous 3 months, or a need for blood or plasma transfusions during the study.

Table S2. CD4+ T cell responses to *B. anthracis* PA epitopes in AVP vaccinees

Human cohorts	HLA class II						T cell response to anthrax PA domain I-IV epitopes, SFC/10^6 cells																							
	HLA-DRB1*		HLA-DRB3*/4*/5*		HLA-DQB1*		11-30	21-40	41-60	61-80	81-100	141-160	161-180	191-210	221-240	241-260	261-280	301-320	321-340	361-380	391-410	421-440	431-450	491-510	501-520	521-540	561-580	601-620	621-640	631-650	641-660	671-690
AVP vaccinee 1	11	15	51	52	6	7	0	0	0	0	0	0	219	266	0	0	0	0	0	190	217	0	284	0	0	0	0	0	0	242	242	313
AVP vaccinee 2	11	15	51	52	6	7	0	891	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	819	0	0	0	0	0	0	0
AVP vaccinee 3	11	13	52	-	6	7	1247	1177	1057	977	895	933	0	0	1159	1077	485	681	169	521	0	1123	1199	1109	1133	857	821	1015	1077	0	0	1079
AVP vaccinee 4	15	7	51	53	2	6	0	0	0	0	0	0	0	0	0	519	0	309	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AVP vaccinee 5	103	17	52	-	2	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AVP vaccinee 6	1	13	52	-	5	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AVP vaccinee 7	11	15	51	52	6	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AVP vaccinee 8	1	-	-	-	5	-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AVP vaccinee 9	4	12	52	53	7	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AVP vaccinee 10	7	15	51	53	2	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table S3. CD4+ T cell responses to *B. anthracis* PA epitopes in anthrax-recovered patients

Human cohorts	HLA class II						T cell response to anthrax PA domain I-IV epitopes, SFC/10^6 cells													
	HLA-DRB1*		HLA-DRB3*/4*/5*		HLA-DQB1*		1-20	11-30	21-40	31-50	41-60	51-70	61-80	71-90	81-100	91-110	101-120	121-140	131-150	141-160	151-170
Infected donor 1	11	13	52	-	6	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Infected donor 2	4	-	53	-	8	-	299	330	301	263	224	0	203	0	0	0	0	0	304	299	417
Infected donor 3	4	14	52	53	5	8	0	0	0	0	0	0	0	486	0	454	0	0	0	0	0
Infected donor 4	15	-	51	-	6	-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Infected donor 5	8	11	52	-	7	-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	977
Infected donor 6	11	13	52	-	6	7	0	0	0	0	0	0	0	0	0	0	0	581	0	0	0
Infected donor 7	4	14	52	53	5	-	0	0	1017	0	971	723	1193	957	1225	949	793	451	0	505	691
Infected donor 8	1	16	51	-	5	-	0	0	0	0	759	784	0	0	0	0	0	0	0	0	0
Infected donor 9	15	13	51	52	6	-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Human cohorts	T cell response to anthrax PA domain I-IV epitopes, SFC/10^6 cells																
	148-167	168-187	161-180	171-190	181-200	191-210	211-230	221-240	231-250	241-260	261-280	271-290	281-300	301-320	311-330	321-340	331-350
Infected donor 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Infected donor 2	337	383	349	268	0	229	229	246	0	304	0	0	0	176	0	0	0
Infected donor 3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Infected donor 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Infected donor 5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Infected donor 6	0	0	0	0	0	0	0	0	0	0	0	0	641	0	0	0	477
Infected donor 7	1013	919	1251	915	911	921	0	0	1117	711	757	1063	759	649	799	805	685
Infected donor 8	0	813	0	0	0	0	0	0	0	0	723	0	0	0	0	212	0
Infected donor 9	0	263	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

	T cell response to anthrax PA domain I-IV epitopes, SFC/10^6 cells																
Human cohorts	341-360	351-370	361-380	371-390	381-400	391-410	401-420	411-430	421-440	431-450	441-460	451-470	461-480	471-490	481-500	491-510	501-520
Infected donor 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Infected donor 2	0	263	325	304	0	263	215	268	323	299	0	232	179	222	0	325	289
Infected donor 3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Infected donor 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Infected donor 5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Infected donor 6	0	0	0	0	0	0	0	0	0	599	801	0	0	0	577	0	0
Infected donor 7	891	0	747	735	855	1199	0	0	859	1039	0	899	0	0	807	0	661
Infected donor 8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Infected donor 9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

	T cell response to anthrax PA domain I-IV epitopes, SFC/10^6 cells																
Human cohorts	511-530	521-540	531-550	541-560	551-570	561-580	571-590	581-600	591-610	601-620	611-630	621-640	631-650	641-660	651-670	661-680	671-690
Infected donor 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Infected donor 2	241	234	0	306	0	0	0	0	232	234	301	311	414	357	270	256	222
Infected donor 3	0	0	0	0	0	0	396	0	0	0	0	0	0	0	0	0	0
Infected donor 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Infected donor 5	1061	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Infected donor 6	0	0	603	0	0	0	495	779	0	0	0	0	539	0	0	0	545
Infected donor 7	419	815	995	1391	881	1085	983	619	0	0	0	621	1043	0	893	705	993
Infected donor 8	0	617	846	0	0	0	0	0	0	0	0	0	0	0	823	0	0
Infected donor 9	0	0	0	0	596	0	0	0	0	0	0	0	0	0	474	0	0

	T cell response to anthrax PA domain I-IV epitopes, SFC/10^6 cells		
Human cohorts	681-700	691-710	716-735
Infected donor 1	0	0	0
Infected donor 2	0	210	0
Infected donor 3	532	0	0
Infected donor 4	0	0	0
Infected donor 5	0	0	0
Infected donor 6	905	0	0
Infected donor 7	929	1121	869
Infected donor 8	0	0	0
Infected donor 9	0	0	0

Table S4. Differential susceptibility of HLA class II transgenic mice to anthrax infection

HLA	*B. anthracis* STI challenge dose (CFU)	Number of mice challenged	Number of challenge survivors	Mean time to death (days)	Bacterial load in spleens within observation period post-infection mean CFU/spleen (± SEM)	Bacterial load in spleens of survivors at day 20 mean CFU/spleen (± SEM)	Estimated LD_{50} (CFU)
C57Bl6	10^5	10	4	4.5 (±0.22)	$1.0x10^3$ ($±0.32x10^3$) (n=6)	91 (±18)	10^5
DQ6	10^5	8	8	-	-	255 (±39)	$>10^5$
DR4	10^5	10	8	7 (±3)	$1.27x10^3$ (n=1)	22 (±13)	$>10^5$
DR15	10^5	9	5	5.75 (±0.48)	$0.85x10^3$ ($±0.21 x10^3$) (n=4)	67 (±32)	10^5
DQ8	10^6	10	8	6	$2.17x10^3$ ($±0.67x10^3$) (n=2)	896 (±263)	$>10^6$
DR1	10^6	10	10	-	-	411 (±93)	$>10^6$

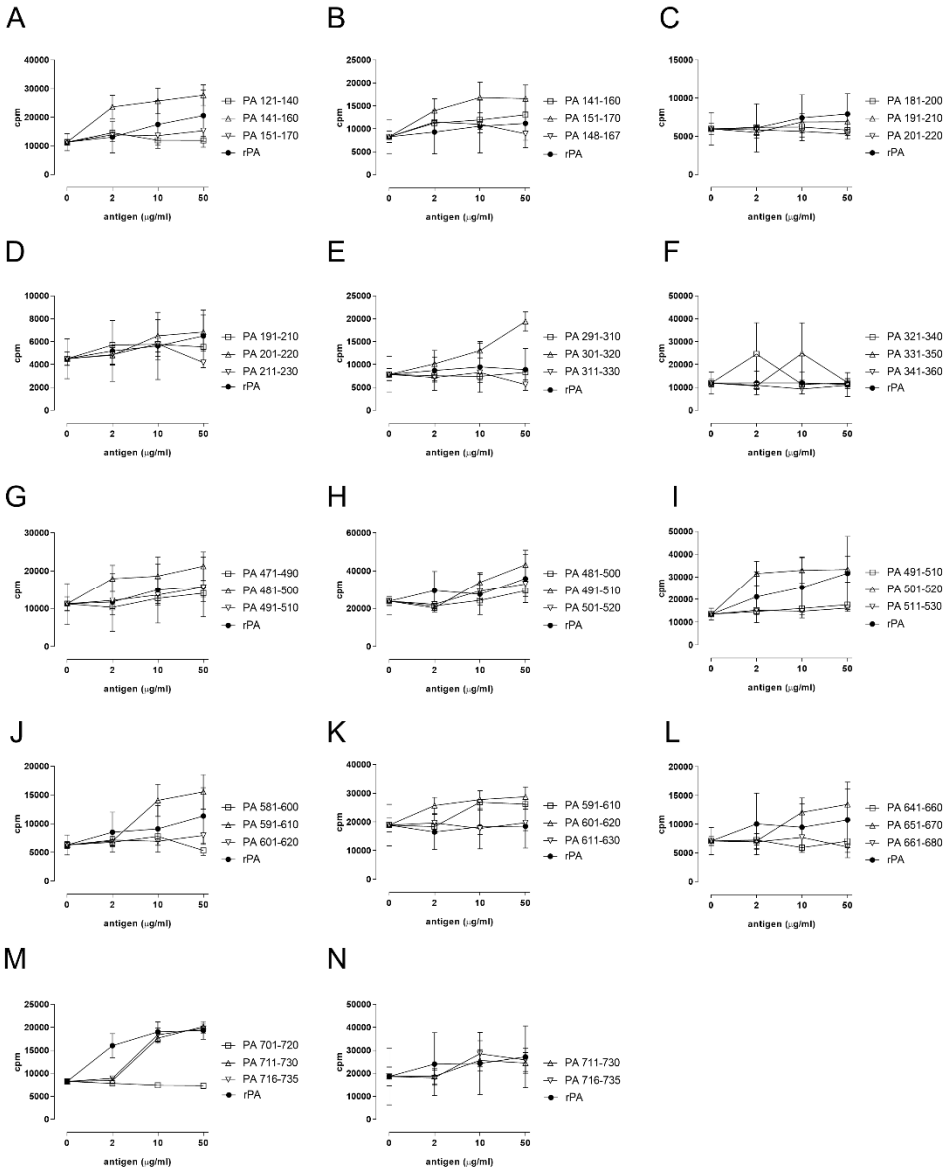

Figure S1. Fine specificity mapping of previously identified HLA-DQ8 restricted T cell epitopes.

HLA-DQ8 transgenics were immunised with the previously identified PA peptide in adjuvant. The proliferative responses of draining lymph node cells were measured in response to the indicated concentrations of whole PA protein, domains I-IV of the protein and the immunising and flanking peptides. The responses are shown as the stimulation index calculated as the mean CPM of triplicate wells in the presence of peptide divided by the mean CPM in the absence of antigen. Values twice the mean CPM in the absence of antigen were considered positive responses (n=3 for each data point).

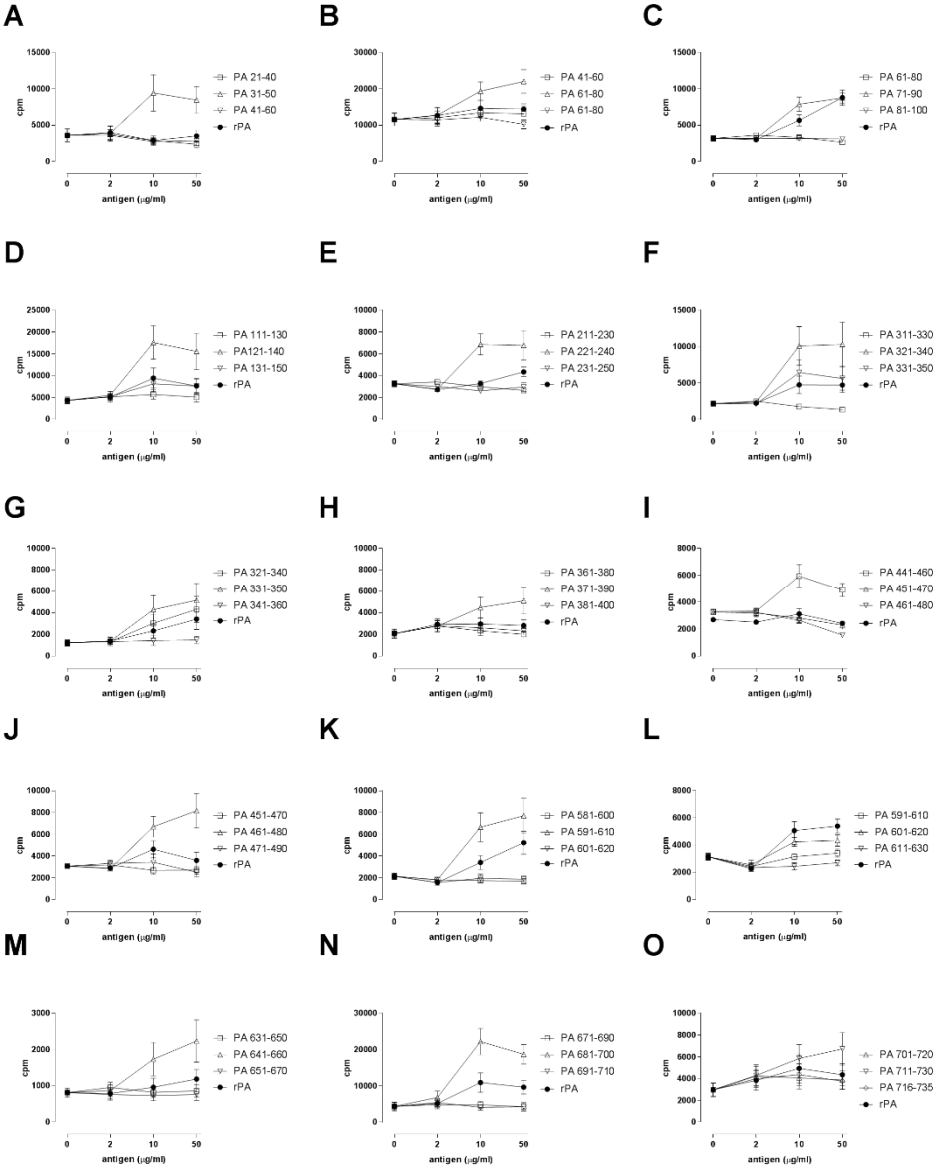

Figure S2. Fine specificity mapping of previously identified HLA-DR4 restricted T cell epitopes.

HLA-DR4 transgenics were immunised with the previously identified PA peptide in adjuvant. The proliferative responses of draining lymph node cells were measured in response to the indicated concentrations of whole PA protein, domains I-IV of the protein and the immunising and flanking peptides. The responses are shown as the stimulation index calculated as the mean CPM of triplicate wells in the presence of peptide divided by the mean CPM in the absence of antigen. Values twice the mean CPM in the absence of antigen were considered positive responses (n=3 for each data point).

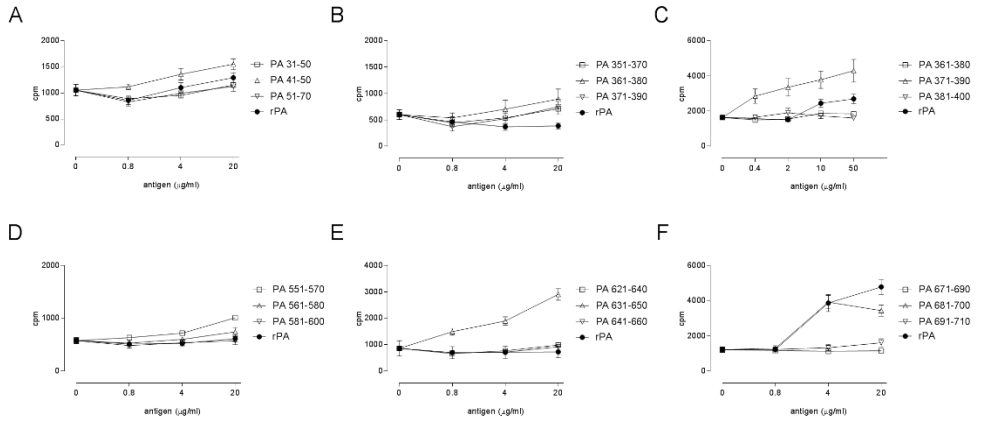

Figure S3. Fine specificity mapping of previously identified HLA-DR1 restricted T cell epitopes.

HLA-DR1 transgenics were immunised with the previously identified PA peptide in adjuvant. The proliferative responses of draining lymph node cells were measured in response to the indicated concentrations of whole PA protein, domains I-IV of the protein and the immunising and flanking peptides. The responses are shown as the stimulation index calculated as the mean CPM of triplicate wells in the presence of peptide divided by the mean CPM in the absence of antigen. Values twice the mean CPM in the absence of antigen were considered positive responses (n=3 for each data point).