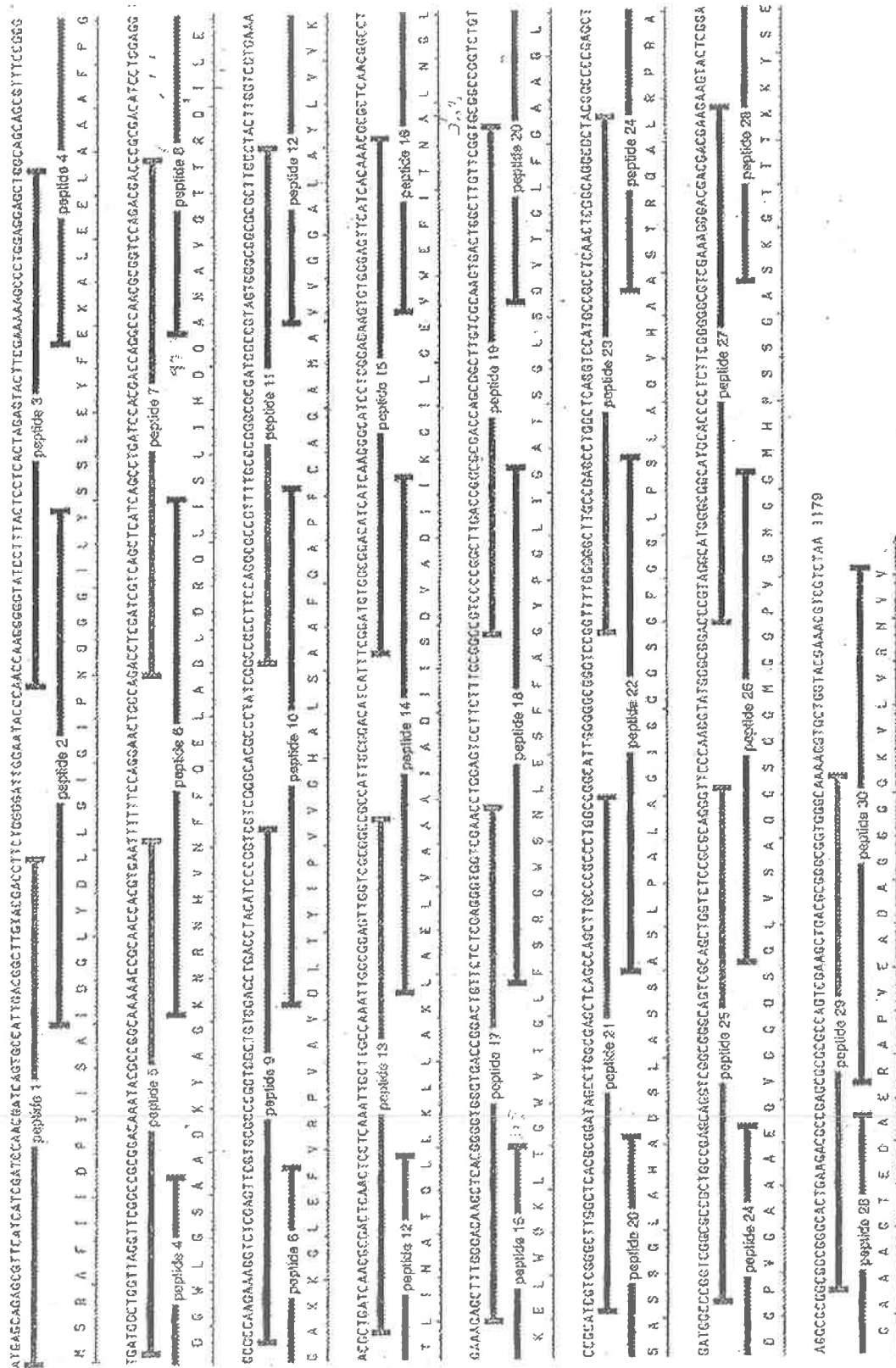




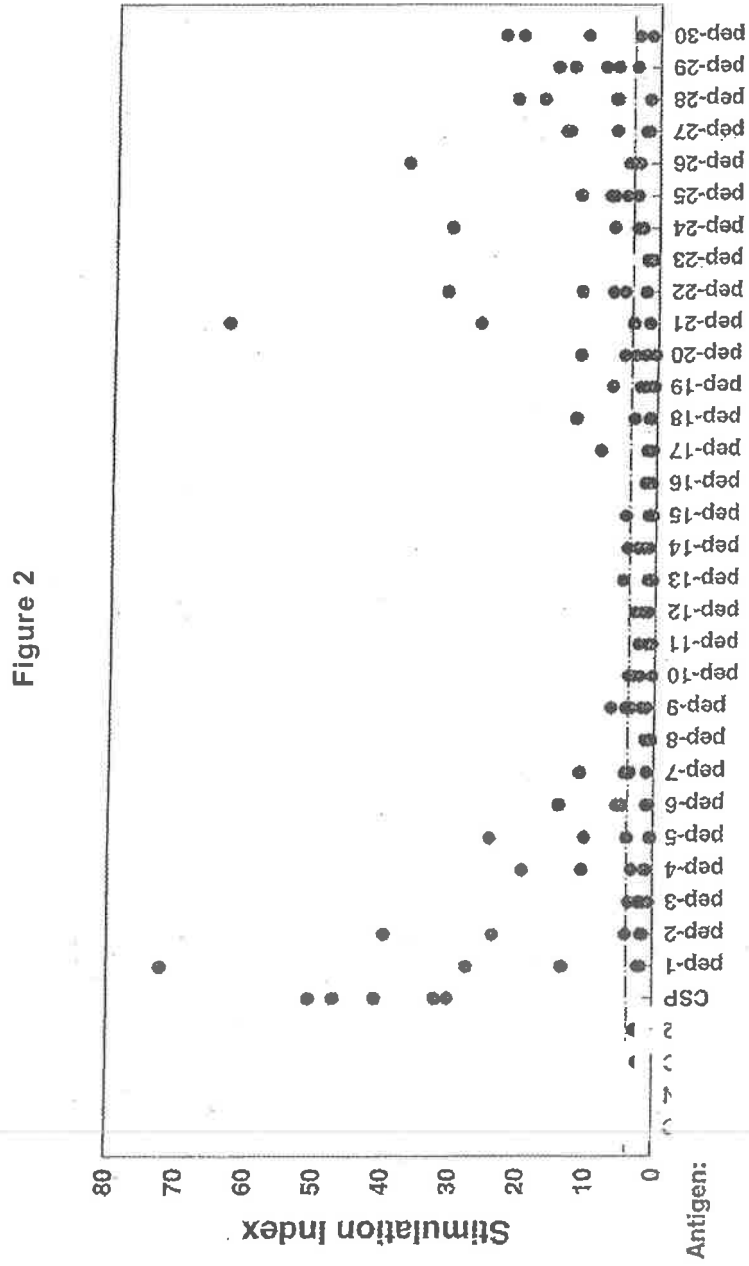


Figure 3

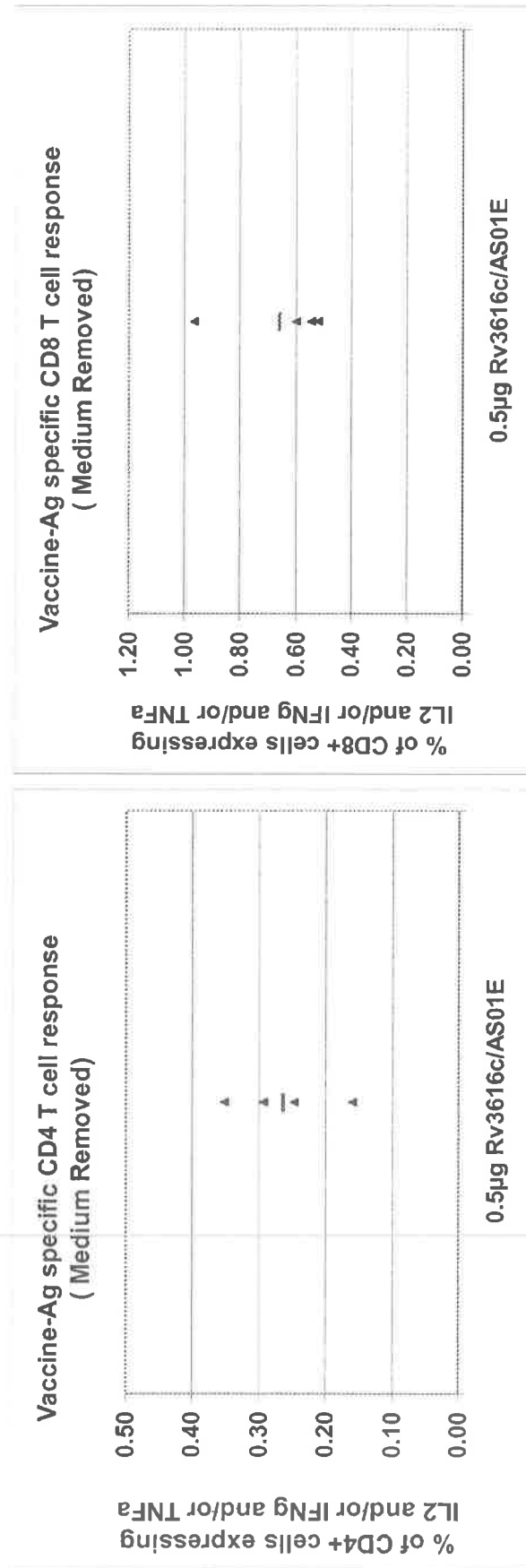


Figure 5

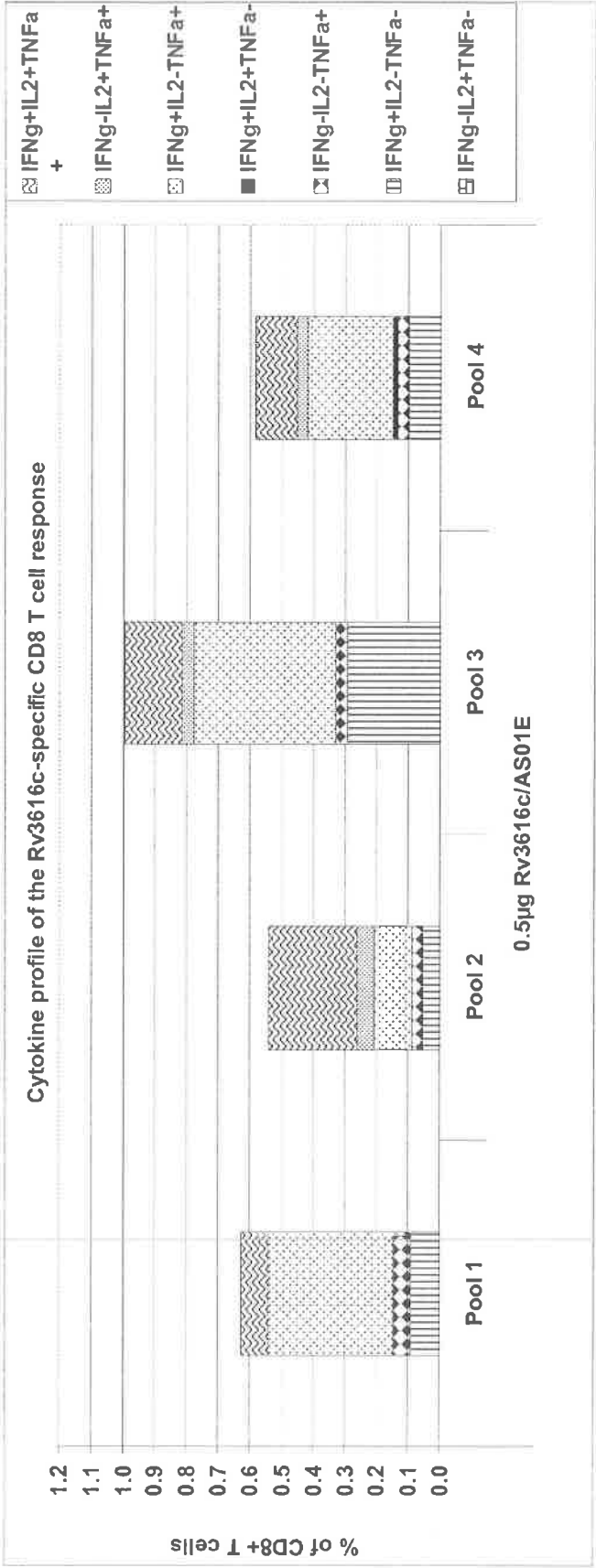


Figure 6

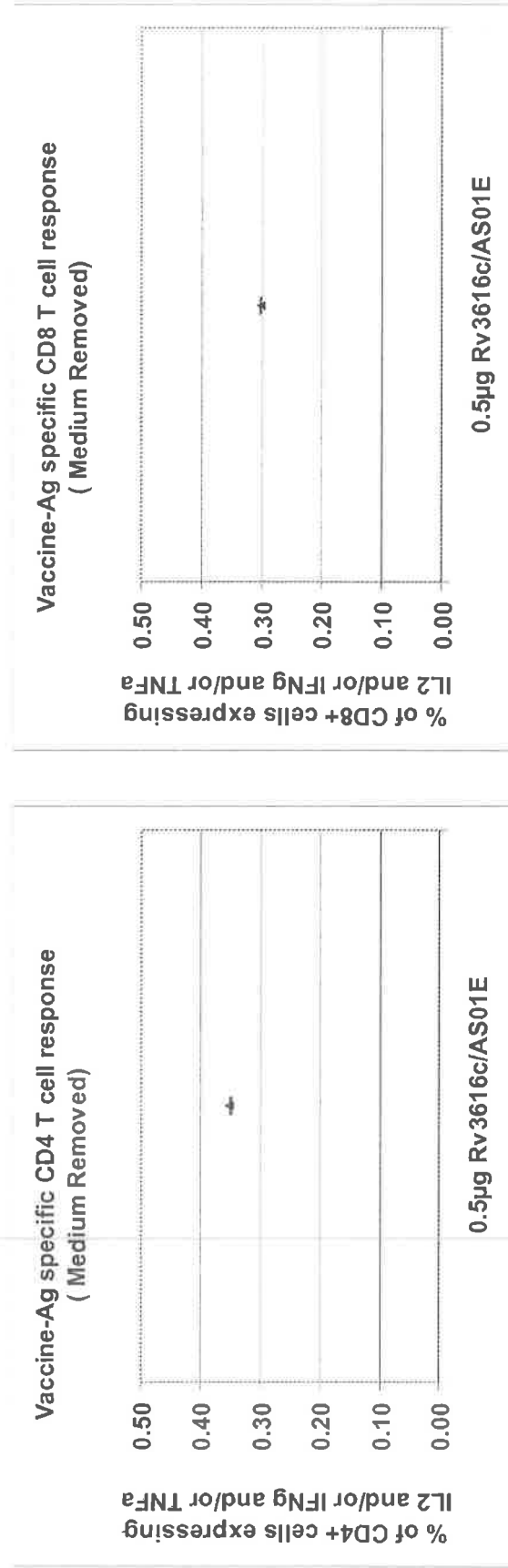


Figure 7

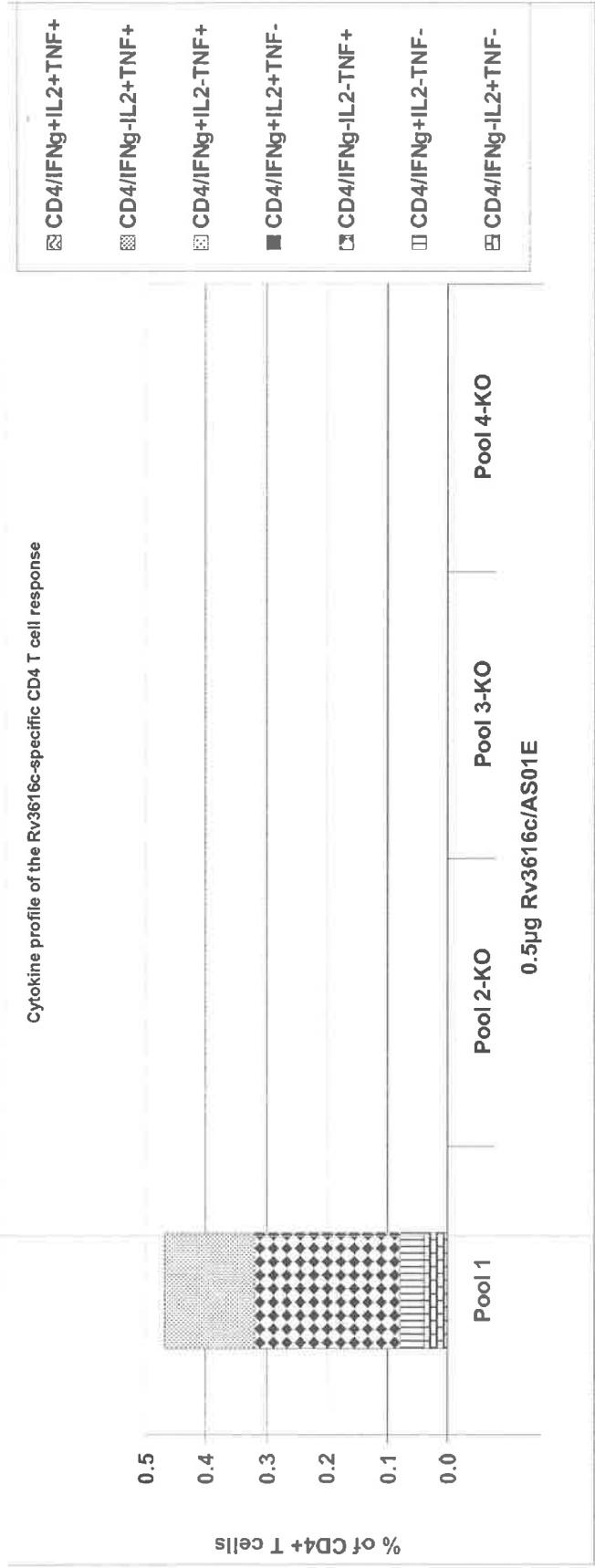


Figure 8

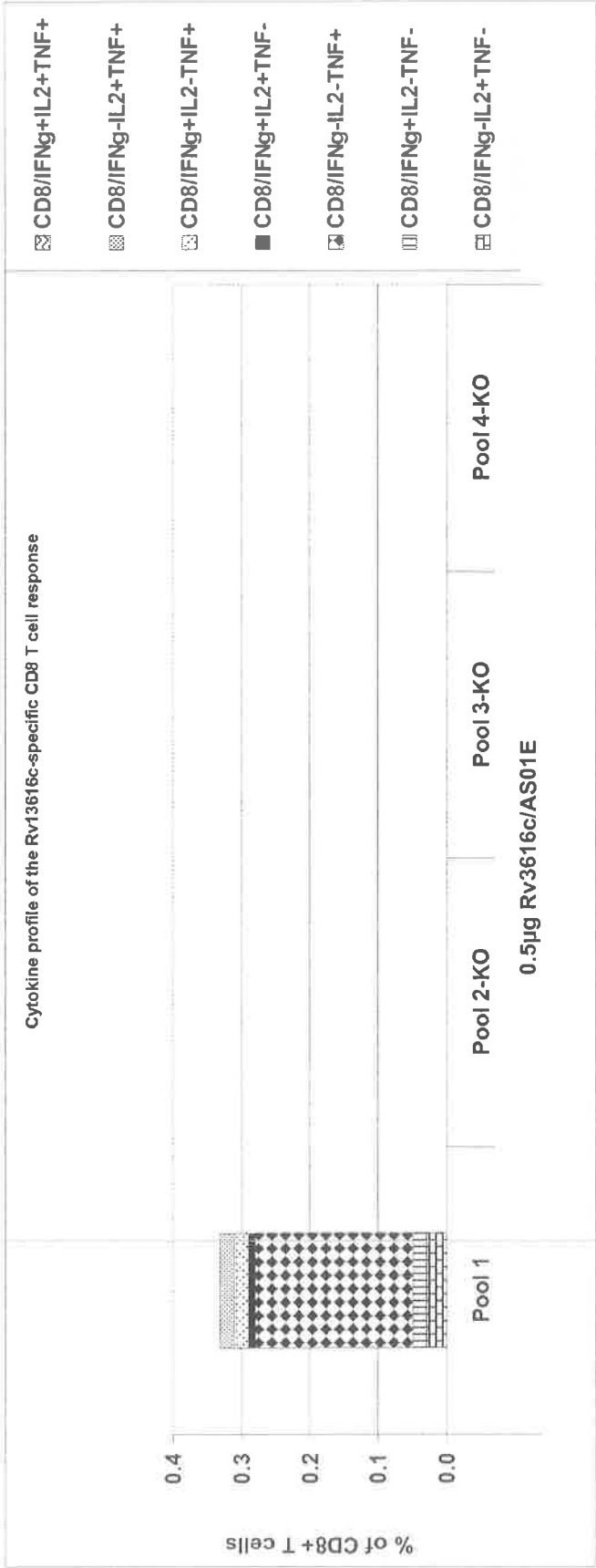


Figure 9

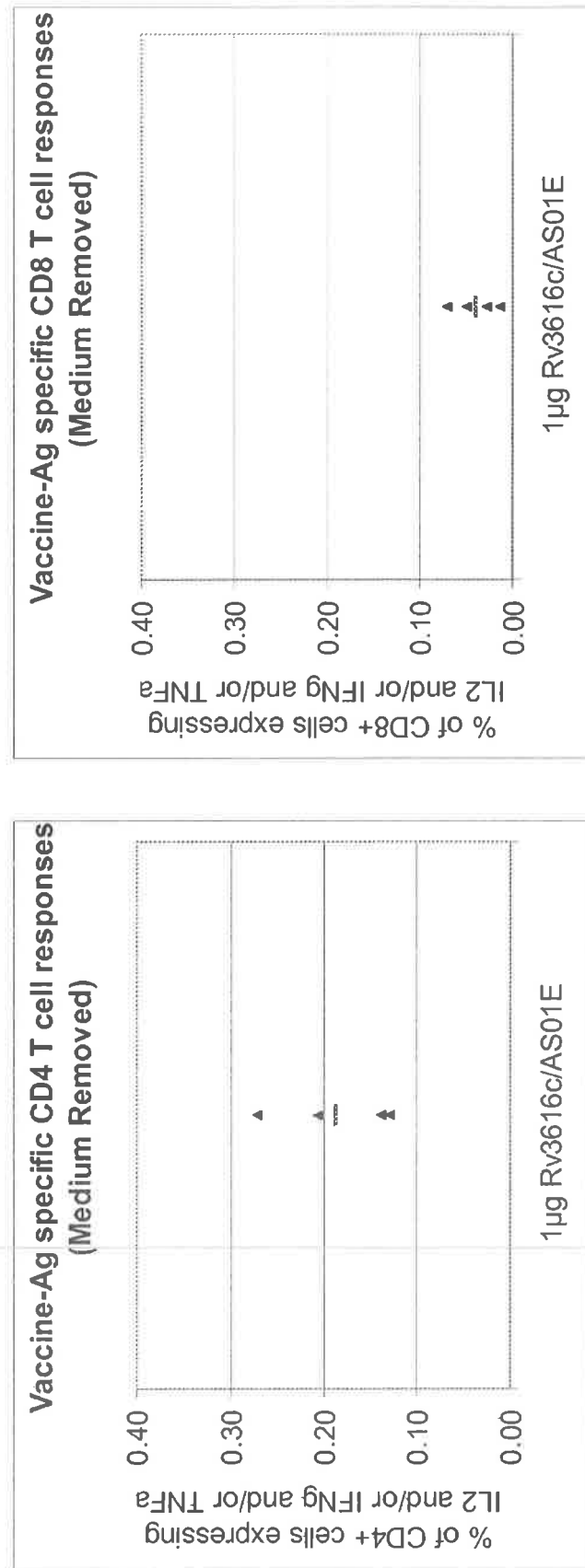


Figure 10

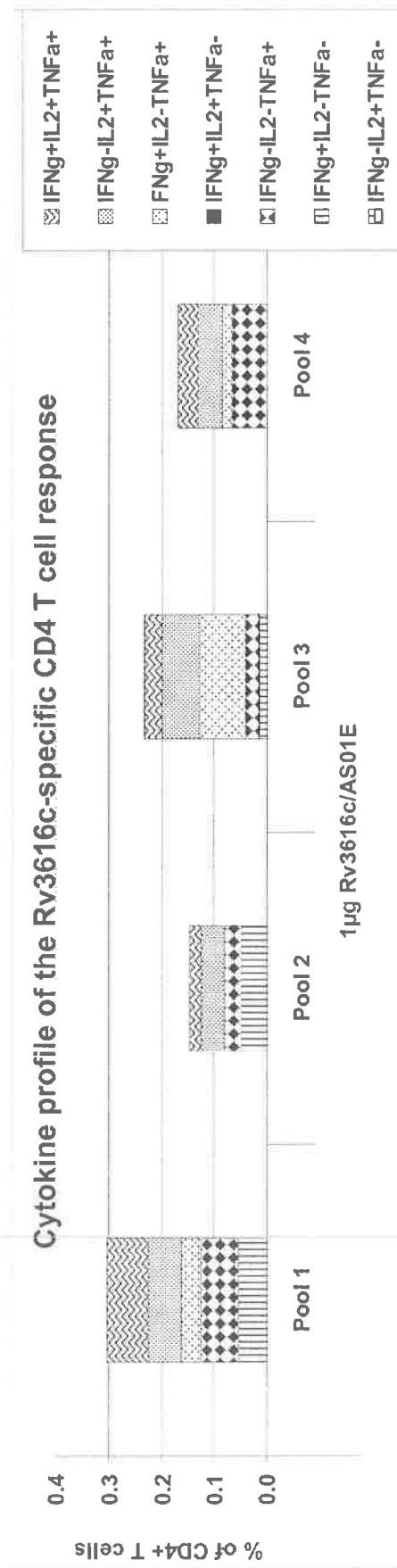


Figure 11

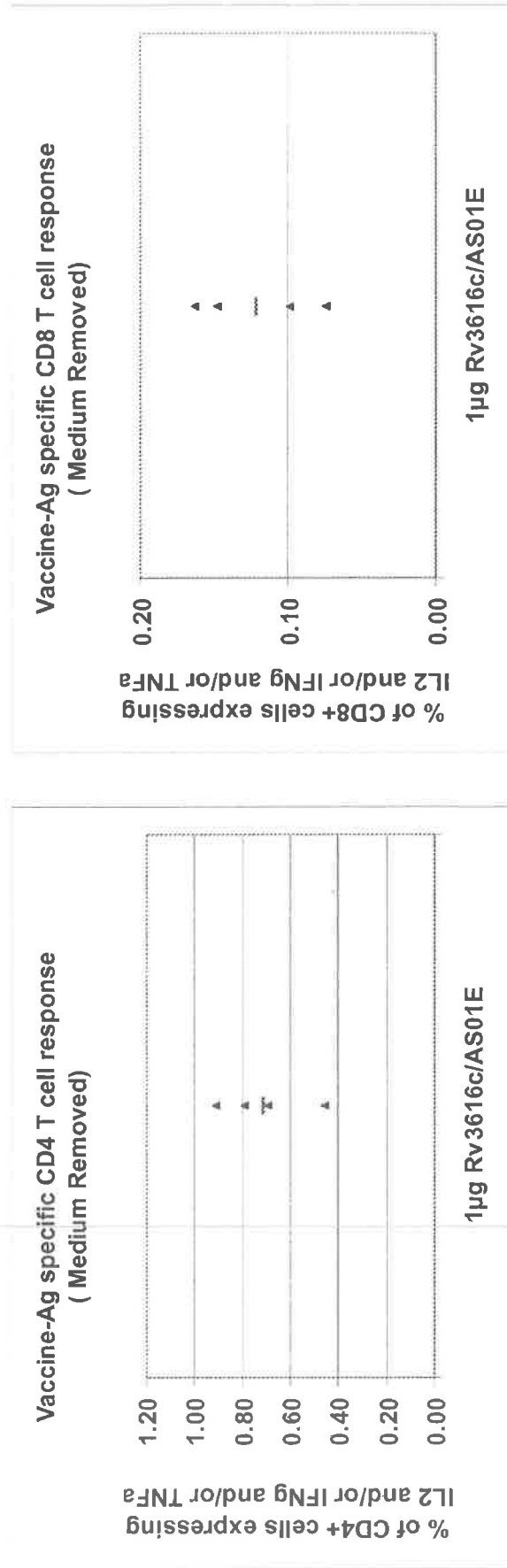


Figure 12

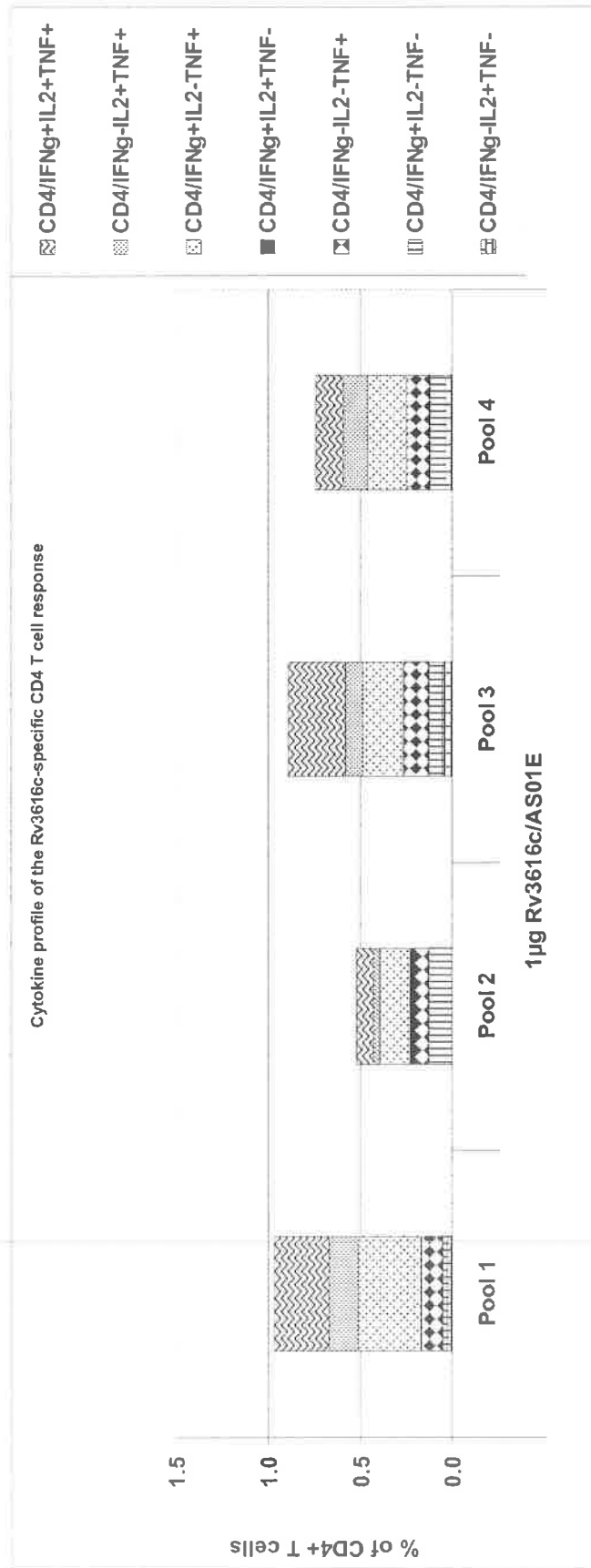


Figure 14

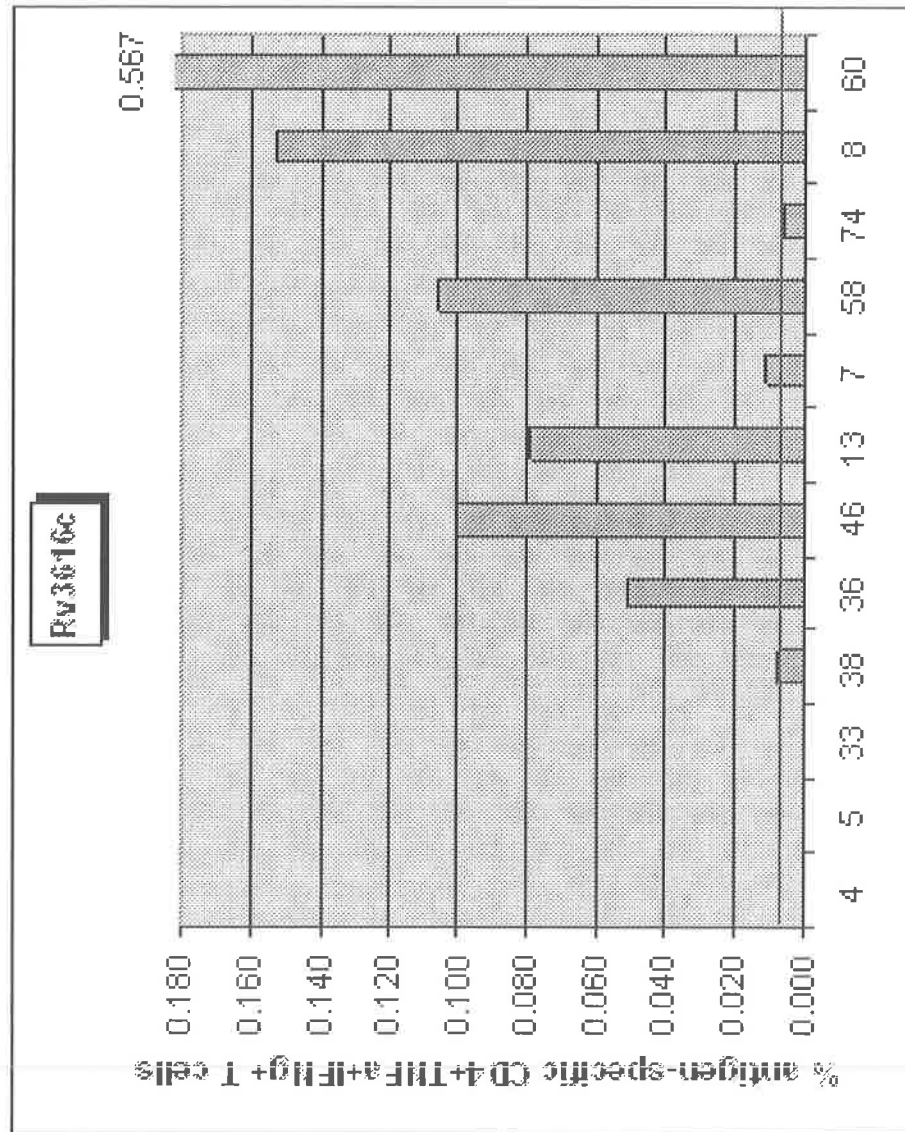


Figure 15

H37Rv	1	MSRAFIIDPTISAI	DGLYDLLGIGIPNQGGILYSSLEYFEKALEELAAAFPGDGLGSAA
CDC1551	1	MSRAFIIDPTISAI	DGLYDLLGIGIPNQGGILYSSLEYFEKALEELAAAFPGDGLGSAA
F11	1	MSRAFIIDPTISAI	DGLYDLLGIGIPNQGGILYSSLEYFEKALEELAAAFPGDGLGSAA
Haarlem	1	MSRAFIIDPTISAI	DGLYDLLGIGIPNQGGILYSSLEYFEKALEELAAAFPGDGLGSAA
StrainC	1	MSRAFIIDPTISAI	DGLYDLLGIGIPNQGGILYSSLEYFEKALEELAAAFPGDGLGSAA
BCG	1	MSRAFIIDPTISAI	DGLYDLLGIGIPNQGGILYSSLEYFEKALEELAAAFPGDGLGSAA
H37Rv	61	DKYAGKNRNHVNFFQELADLDRQLISLIHDQANAVQ	TRDILEGAKKGLEFVRPVAVDLT
CDC1551	61	DKYAGKNRNHVNFFQELADLDRQLISLIHDQANAVQ	TRDILEGAKKGLEFVRPVAVDLT
F11	61	DKYAGKNRNHVNFFQELADLDRQLISLIHDQANAVQ	TRDILEGAKKGLEFVRPVAVDLT
Haarlem	61	DKYAGKNRNHVNFFQELADLDRQLISLIHDQANAVQ	TRDILEGAKKGLEFVRPVAVDLT
StrainC	61	DKYAGKNRNHVNFFQELADLDRQLISLIHDQANAVQ	TRDILEGAKKGLEFVRPVAVDLT
BCG	61	DKYAGKNRNHVNFFQELADLDRQLISLIHDQANAVQ	TRDILEGAKKGLEFVRPVAVDLT
H37Rv	121	YIPVVGHALSAAFQAPFCAGAMAVVGGALAYLVVKT	LINATQLLKLLAKLAELVAAAIAD
CDC1551	121	YIPVVGHALSAAFQAPFCAGAMAVVGGALAYLVVKT	LINATQLLKLLAKLAELVAAAIAD
F11	121	YIPVVGHALSAAFQAPFCAGAMAVVGGALAYLVVKT	LINATQLLKLLAKLAELVAAAIAD
Haarlem	121	YIPVVGHALSAAFQAPFCAGAMAVVGGALAYLVVKT	LINATQLLKLLAKLAELVAAAIAD
StrainC	121	YIPVVGHALSAAFQAPFCAGAMAVVGGALAYLVVKT	LINATQLLKLLAKLAELVAAAIAD
BCG	121	YIPVVGHALSAAFQAPFCAGAMAVVGGALAYLVVKT	LINATQLLKLLAKLAELVAAAIAD
H37Rv	181	IISDVADI	IKGILGEVWEFITNALNGLKELWDKLTGWVTGLFSRGWSNLESFFAGVPGLT
CDC1551	181	IISDVADI	IKGILGEVWEFITNALNGLKELWDKLTGWVTGLFSRGWSNLESFFAGVPGLT
F11	181	IISDVADI	IKGILGEVWEFITNALNGLKELWDKLTGWVTGLFSRGWSNLESFFAGVPGLT
Haarlem	181	IISDVADI	IKGILGEVWEFITNALNGLKELWDKLTGWVTGLFSRGWSNLESFFAGVPGLT
StrainC	181	IISDVADI	IKGILGEVWEFITNALNGLKELWDKLTGWVTGLFSRGWSNLESFFAGVPGLT
BCG	181	IISDVADI	IKGILGEVWEFITNALNGLKELWDKLTGWVTGLFSRGWSNLESFFAGVPGLT
H37Rv	241	GATSGLSQVTGLFGAAGLSASSGLAHADSLASSASL	PALAGIGGGSGFGGLPSLAQVHAA
CDC1551	241	GATSGLSQVTGLFGAAGLSASSGLAHADSLASSASL	PALAGIGGGSGFGGLPSLAQVHAA
F11	241	GATSGLSQVTGLFGAAGLSASSGLAHADSLASSASL	PALAGIGGGSGFGGLPSLAQVHAA
Haarlem	241	GATSGLSQVTGLFGAAGLSASSGLAHADSLASSASL	PALAGIGGGSGFGGLPSLAQVHAA
StrainC	241	GATSGLSQVTGLFGAAGLSASSGLAHADSLASSASL	PALAGIGGGSGFGGLPSLAQVHAA
BCG	241	GATSGLSQVTGLFGAAGLSASSGLAHADSLASSASL	PALAGIGGGSGFGGLPSLAQVHAA
H37Rv	301	STRQALRPRADGPVGAAAEQVGGQSQLVSAQGSQGMGGP	VGMGGMHPSSGASKGTTTKKY
CDC1551	301	STRQALRPRADGPVGAAAEQVGGQSQLVSAQGSQGMGGP	VGMGGMHPSSGASKGTTTKKY
F11	301	STRQALRPRADGPVGAAAEQVGGQSQLVSAQGSQGMGGP	VGMGGMHPSSGASKGTTTKKY
Haarlem	301	STRQALRPRADGPVGAAAEQVGGQSQLVSAQGSQGMGGP	VGMGGMHPSSGASKGTTTKKY
StrainC	301	STRQALRPRADGPVGAAAEQVGGQSQLVSAQGSQGMGGP	VGMGGMHPSSGASKGTTTKKY
BCG	301	STRQALRPRADGPVGAAAEQVGGQSQLVSAQGSQGMGGP	VGMGGMHPSSGASKGTTTKKY
H37Rv	361	SEGAAAGTEDAERAPVEADAGGGQKVLVRNVV	
CDC1551	361	SEGAAAGTEDAERAPVEADAGGGQKVLVRNVV	
F11	361	SEGAAAGTEDAERAPVEADAGGGQKVLVRNVV	
Haarlem	361	SEGAAAGTEDAERAPVEADAGGGQKVLVRNVV	
StrainC	361	SEGAAAGTEDAERAPVEADAGGGQKVLVRNVV	
BCG	361	SEGAAAGTEDAERAPVEADAGGGQKVLVRNVV	

Figure 16A

Rv3616_wt	1	MSRAFIIDPTISAIIDGLYDLLGIGIPNQGGILYSSLEYFEKALEELAAAFPGDGWLGSAA
d136-183	1	MSRAFIIDPTISAIIDGLYDLLGIGIPNQGGILYSSLEYFEKALEELAAAFPGDGWLGSAA
d150-160	1	MSRAFIIDPTISAIIDGLYDLLGIGIPNQGGILYSSLEYFEKALEELAAAFPGDGWLGSAA
d136-154	1	MSRAFIIDPTISAIIDGLYDLLGIGIPNQGGILYSSLEYFEKALEELAAAFPGDGWLGSAA
d166-182	1	MSRAFIIDPTISAIIDGLYDLLGIGIPNQGGILYSSLEYFEKALEELAAAFPGDGWLGSAA
d135-139	1	MSRAFIIDPTISAIIDGLYDLLGIGIPNQGGILYSSLEYFEKALEELAAAFPGDGWLGSAA
d142-145	1	MSRAFIIDPTISAIIDGLYDLLGIGIPNQGGILYSSLEYFEKALEELAAAFPGDGWLGSAA
d138-145	1	MSRAFIIDPTISAIIDGLYDLLGIGIPNQGGILYSSLEYFEKALEELAAAFPGDGWLGSAA
d145-152	1	MSRAFIIDPTISAIIDGLYDLLGIGIPNQGGILYSSLEYFEKALEELAAAFPGDGWLGSAA
d149-154	1	MSRAFIIDPTISAIIDGLYDLLGIGIPNQGGILYSSLEYFEKALEELAAAFPGDGWLGSAA

Rv3616_wt	61	DKYAGKNRNHVNFFQELADLDRQLISLIHDQANAVQTTDRDILEGAKKGLEFVRPVAVDLT
d136-183	61	DKYAGKNRNHVNFFQELADLDRQLISLIHDQANAVQTTDRDILEGAKKGLEFVRPVAVDLT
d150-160	61	DKYAGKNRNHVNFFQELADLDRQLISLIHDQANAVQTTDRDILEGAKKGLEFVRPVAVDLT
d136-154	61	DKYAGKNRNHVNFFQELADLDRQLISLIHDQANAVQTTDRDILEGAKKGLEFVRPVAVDLT
d166-182	61	DKYAGKNRNHVNFFQELADLDRQLISLIHDQANAVQTTDRDILEGAKKGLEFVRPVAVDLT
d135-139	61	DKYAGKNRNHVNFFQELADLDRQLISLIHDQANAVQTTDRDILEGAKKGLEFVRPVAVDLT
d142-145	61	DKYAGKNRNHVNFFQELADLDRQLISLIHDQANAVQTTDRDILEGAKKGLEFVRPVAVDLT
d138-145	61	DKYAGKNRNHVNFFQELADLDRQLISLIHDQANAVQTTDRDILEGAKKGLEFVRPVAVDLT
d145-152	61	DKYAGKNRNHVNFFQELADLDRQLISLIHDQANAVQTTDRDILEGAKKGLEFVRPVAVDLT
d149-154	61	DKYAGKNRNHVNFFQELADLDRQLISLIHDQANAVQTTDRDILEGAKKGLEFVRPVAVDLT

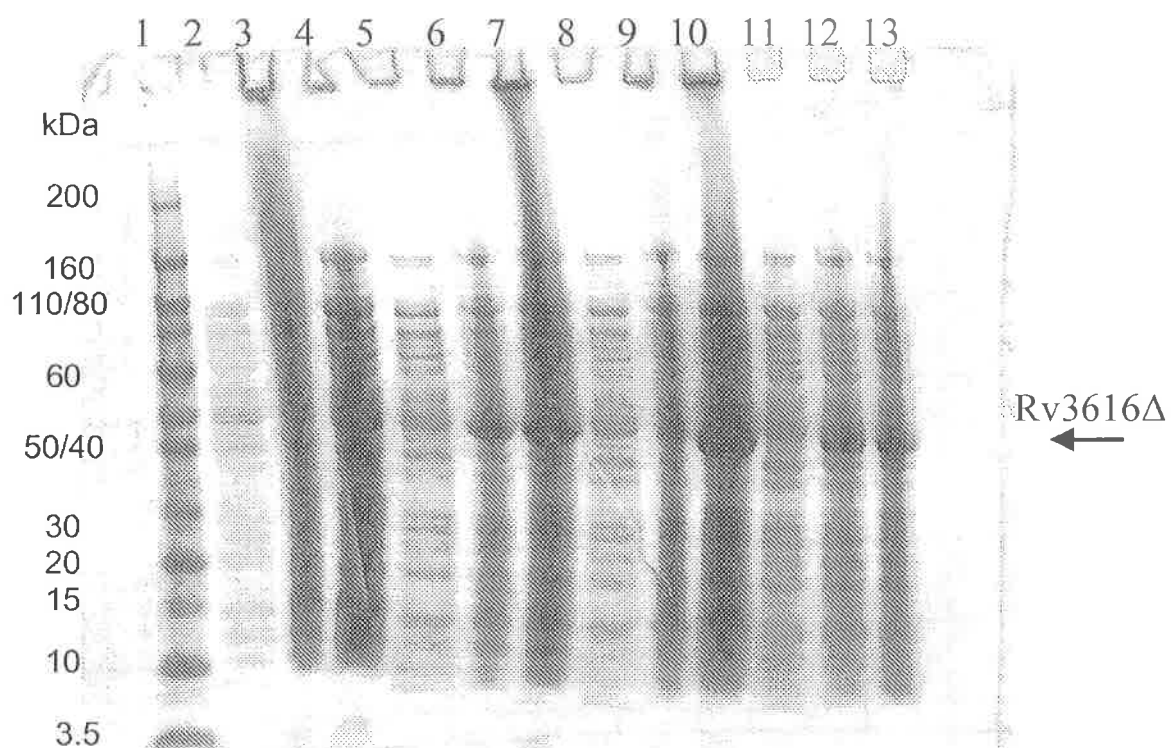
Rv3616_wt	121	YIPVVGHALSAAFQAPFCAGAMAVVGGALAYLVVKT LINATQLLKLLAKLAELVAAAIAD
d136-183	121	YIPVVGHALSAAFQA-----
d150-160	121	YIPVVGHALSAAFQAPFCAGAMAVVGGAL-----TQLLKLLAKLAELVAAAIAD
d136-154	121	YIPVVGHALSAAFQA-----KT LINATQLLKLLAKLAELVAAAIAD
d166-182	121	YIPVVGHALSAAFQAPFCAGAMAVVGGALAYLVVKT LINATQLLK-----
d135-139	121	YIPVVGHALSAAFQ-----GAMAVVGGALAYLVVKT LINATQLLKLLAKLAELVAAAIAD
d142-145	121	YIPVVGHALSAAFQAPFCAGA-----GGALAYLVVKT LINATQLLKLLAKLAELVAAAIAD
d138-145	121	YIPVVGHALSAAFQAPF-----GGALAYLVVKT LINATQLLKLLAKLAELVAAAIAD
d145-152	121	YIPVVGHALSAAFQAPFCAGAMAV-----VVKT LINATQLLKLLAKLAELVAAAIAD
d149-154	121	YIPVVGHALSAAFQAPFCAGAMAVVGA-----KT LINATQLLKLLAKLAELVAAAIAD

Rv3616_wt	181	IISDVADI IKGT LGEVWEFITNALNGLKELWDKLTGWVTGLFSRGWSNLESFFAGVPGLT
d136-183	136	---DVADI IKGT LGEVWEFITNALNGLKELWDKLTGWVTGLFSRGWSNLESFFAGVPGLT
d150-160	170	IISDVADI IKGT LGEVWEFITNALNGLKELWDKLTGWVTGLFSRGWSNLESFFAGVPGLT
d136-154	162	IISDVADI IKGT LGEVWEFITNALNGLKELWDKLTGWVTGLFSRGWSNLESFFAGVPGLT
d166-182	166	--SDVADI IKGT LGEVWEFITNALNGLKELWDKLTGWVTGLFSRGWSNLESFFAGVPGLT
d135-139	176	IISDVADI IKGT LGEVWEFITNALNGLKELWDKLTGWVTGLFSRGWSNLESFFAGVPGLT
d142-145	177	IISDVADI IKGT LGEVWEFITNALNGLKELWDKLTGWVTGLFSRGWSNLESFFAGVPGLT
d138-145	173	IISDVADI IKGT LGEVWEFITNALNGLKELWDKLTGWVTGLFSRGWSNLESFFAGVPGLT
d145-152	173	IISDVADI IKGT LGEVWEFITNALNGLKELWDKLTGWVTGLFSRGWSNLESFFAGVPGLT
d149-154	175	IISDVADI IKGT LGEVWEFITNALNGLKELWDKLTGWVTGLFSRGWSNLESFFAGVPGLT

Figure 16B

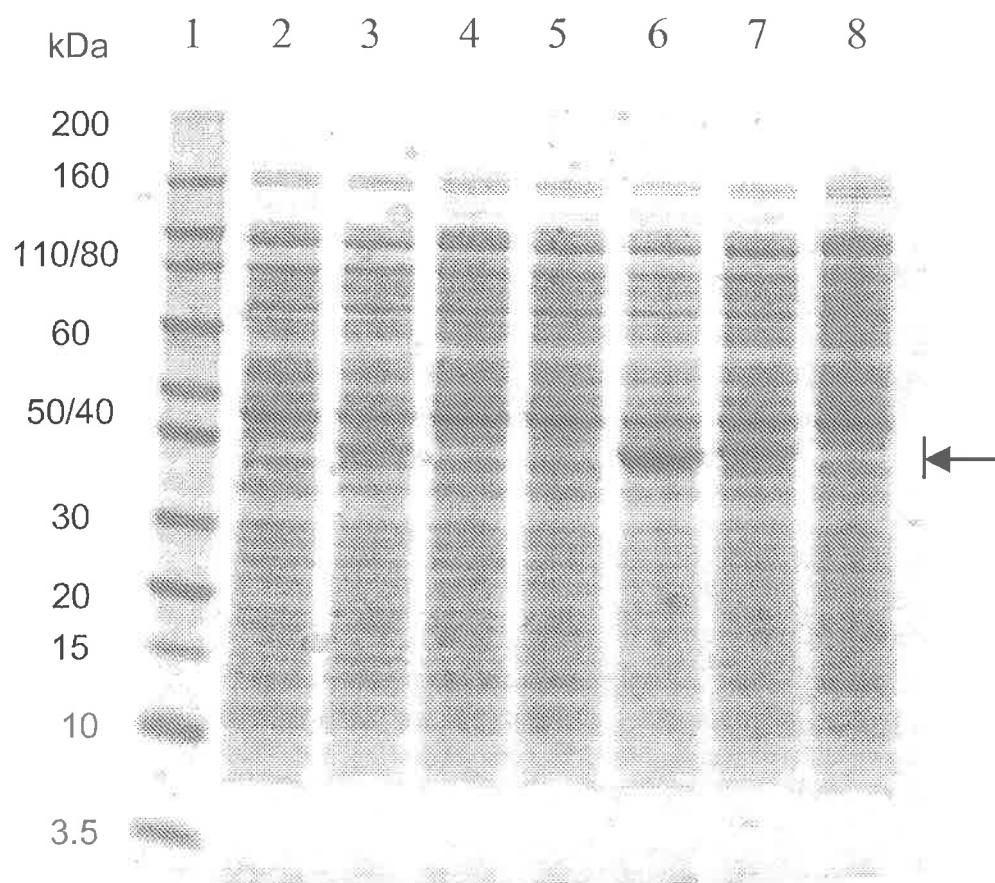
Rv3616_wt	241	GATSGLSQVTGLFGAAGLSASSGLAHADSLASSASLPALAGIGGGSGFGGLPSLAQVHAA
d136-183	193	GATSGLSQVTGLFGAAGLSASSGLAHADSLASSASLPALAGIGGGSGFGGLPSLAQVHAA
d150-160	230	GATSGLSQVTGLFGAAGLSASSGLAHADSLASSASLPALAGIGGGSGFGGLPSLAQVHAA
d136-154	222	GATSGLSQVTGLFGAAGLSASSGLAHADSLASSASLPALAGIGGGSGFGGLPSLAQVHAA
d166-182	224	GATSGLSQVTGLFGAAGLSASSGLAHADSLASSASLPALAGIGGGSGFGGLPSLAQVHAA
d135-139	236	GATSGLSQVTGLFGAAGLSASSGLAHADSLASSASLPALAGIGGGSGFGGLPSLAQVHAA
d142-145	237	GATSGLSQVTGLFGAAGLSASSGLAHADSLASSASLPALAGIGGGSGFGGLPSLAQVHAA
d138-145	233	GATSGLSQVTGLFGAAGLSASSGLAHADSLASSASLPALAGIGGGSGFGGLPSLAQVHAA
d145-152	233	GATSGLSQVTGLFGAAGLSASSGLAHADSLASSASLPALAGIGGGSGFGGLPSLAQVHAA
d149-154	235	GATSGLSQVTGLFGAAGLSASSGLAHADSLASSASLPALAGIGGGSGFGGLPSLAQVHAA
Rv3616_wt	301	STRQALRPRADGPVGAAAEQVGGQSQLVSAQGSQGMGGPVGMGGMHPSSGASKGTTTKKY
d136-183	253	STRQALRPRADGPVGAAAEQVGGQSQLVSAQGSQGMGGPVGMGGMHPSSGASKGTTTKKY
d150-160	290	STRQALRPRADGPVGAAAEQVGGQSQLVSAQGSQGMGGPVGMGGMHPSSGASKGTTTKKY
d136-154	282	STRQALRPRADGPVGAAAEQVGGQSQLVSAQGSQGMGGPVGMGGMHPSSGASKGTTTKKY
d166-182	284	STRQALRPRADGPVGAAAEQVGGQSQLVSAQGSQGMGGPVGMGGMHPSSGASKGTTTKKY
d135-139	296	STRQALRPRADGPVGAAAEQVGGQSQLVSAQGSQGMGGPVGMGGMHPSSGASKGTTTKKY
d142-145	297	STRQALRPRADGPVGAAAEQVGGQSQLVSAQGSQGMGGPVGMGGMHPSSGASKGTTTKKY
d138-145	293	STRQALRPRADGPVGAAAEQVGGQSQLVSAQGSQGMGGPVGMGGMHPSSGASKGTTTKKY
d145-152	293	STRQALRPRADGPVGAAAEQVGGQSQLVSAQGSQGMGGPVGMGGMHPSSGASKGTTTKKY
d149-154	295	STRQALRPRADGPVGAAAEQVGGQSQLVSAQGSQGMGGPVGMGGMHPSSGASKGTTTKKY

Figure 17



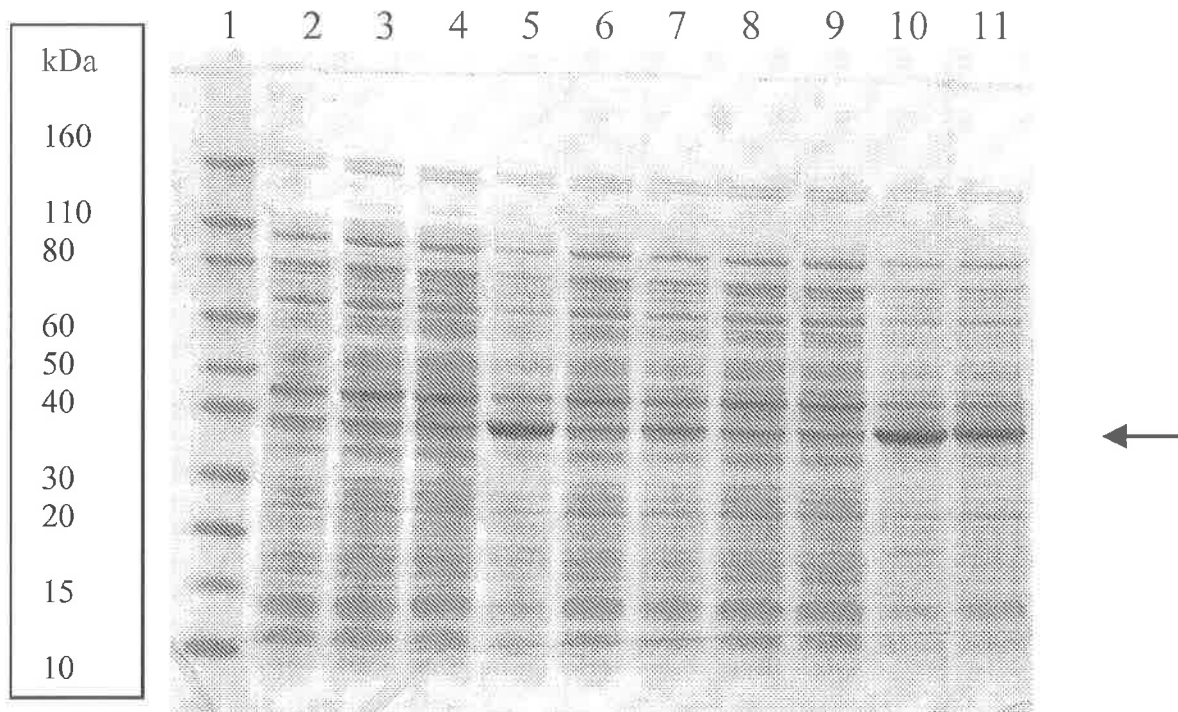
- 1- Novex protein standard
- 2- Rv3616Δ136-183 Before induction (BI)
- 3- Rv3616Δ136-183 After induction (AI) 37°C
- 4- Rv3616Δ136-183 After induction (AI) 16°C
- 5- Rv3616Δ150-160 BI
- 6- Rv3616Δ150-160 AI 37°C
- 7- Rv3616Δ150-160 AI 16°C
- 8- Rv3616Δ136-154 BI
- 9- Rv3616Δ136-154 AI 37°C
- 10- Rv3616Δ136-154 AI 16°C
- 11- Rv3616Δ166-182 BI
- 12- Rv3616Δ166-182 AI 37°C
- 13- Rv3616Δ166-182 AI 16°C

Figure 18



- 1- Novex protein standard
- 2- Rv3616 Before induction (BI)
- 3- Rv3616Δ135-139 After induction (AI) 37°C
- 4- Rv3616Δ142-145 AI 37°C
- 5- Rv3616Δ145-152 AI 37°C
- 6- Rv3616Δ138-145 AI 37°C
- 7- Rv3616Δ149-154 AI 37°C
- 8- Rv3616 AI 37°C

Figure 19



- 1- Novex protein standard
- 2- Rv3616 Before induction (BI)
- 3- Rv3616 After induction (AI)
- 4- Rv3616 Δ 150-160 AI
- 5- Rv3616 Δ 136-154 AI
- 6- Rv3616 Δ 166-182 AI
- 7- Rv3616 Δ 135-139 AI
- 8- Rv3616 Δ 142-145 AI
- 9- Rv3616 Δ 145-152 AI
- 10- Rv3616 Δ 138-145 AI
- 11- Rv3616 Δ 149-154 AI

Figure 20

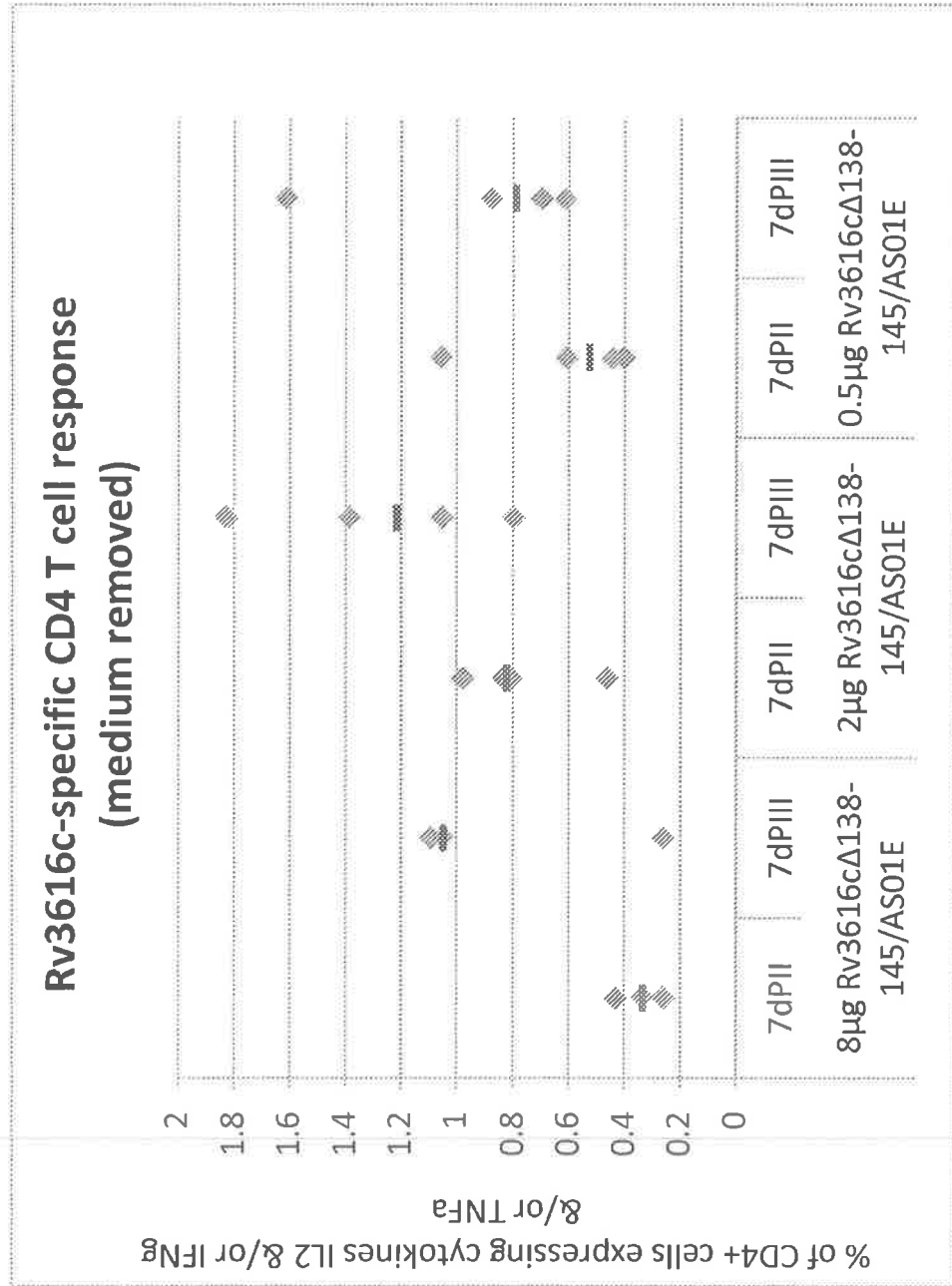


Figure 21

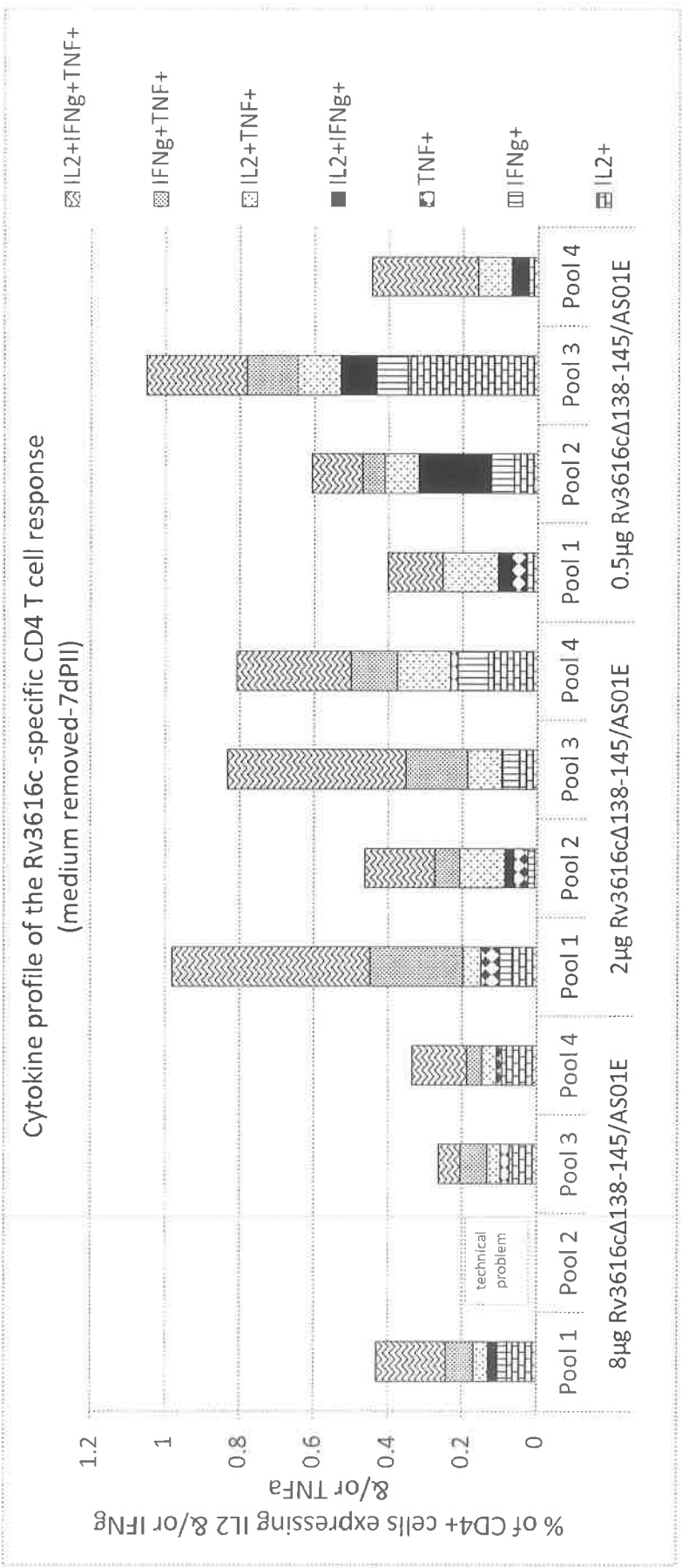


Figure 22

Cytokine profile of the Rv3616c-specific CD4 T cell response
(medium removed-7dPIII)

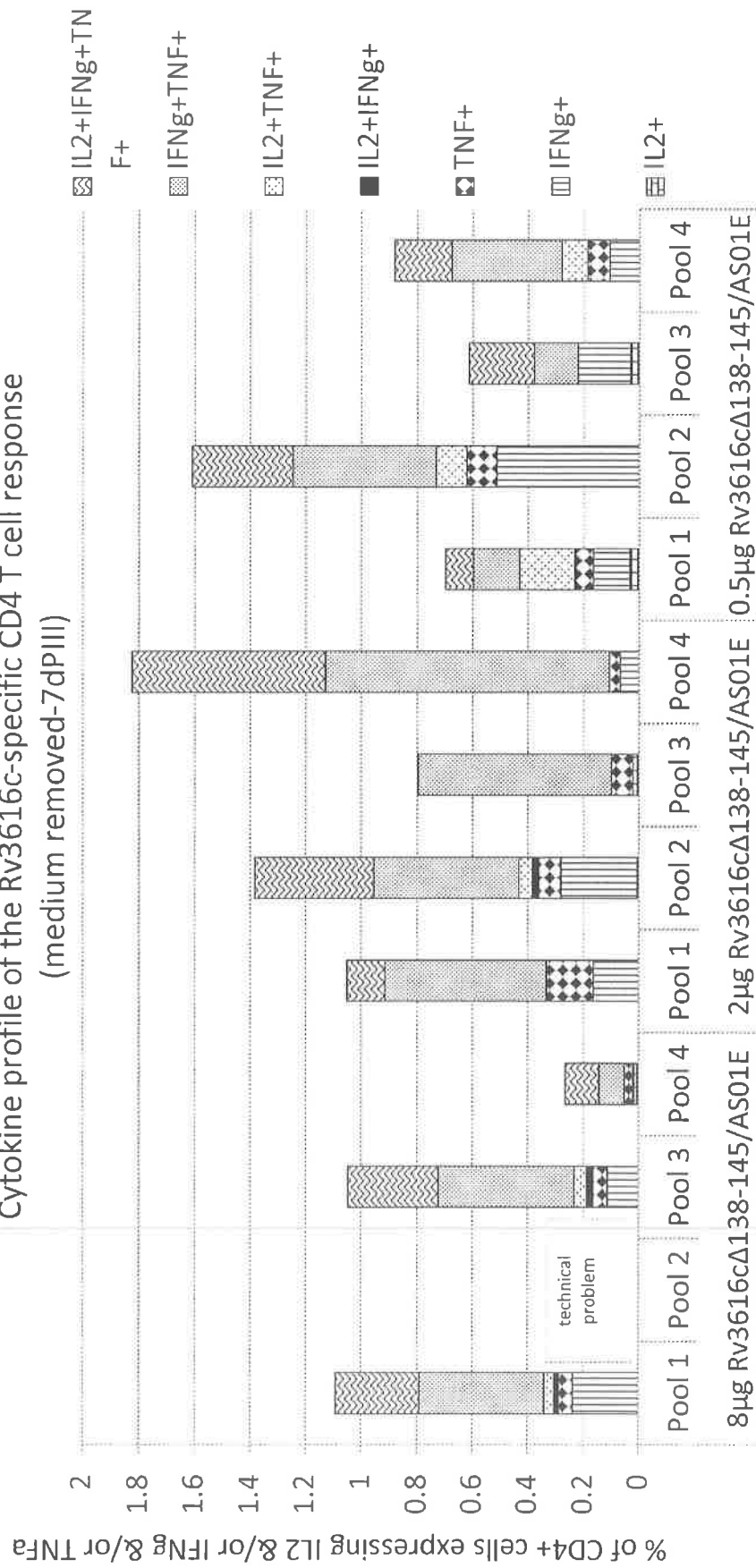
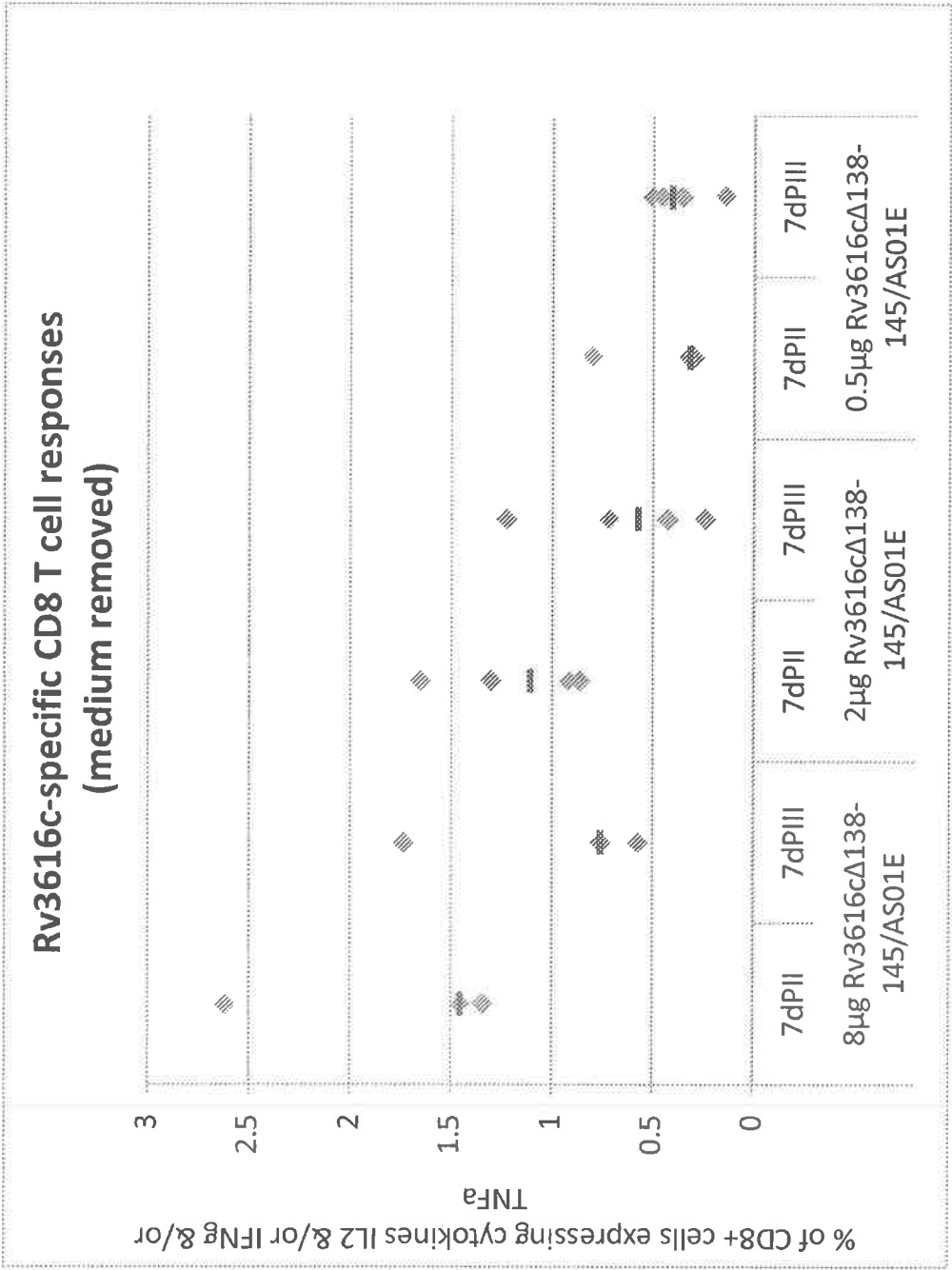


Figure 23



Cytokine profile of the Rv3616c-specific CD8 T cell response
(medium removed - 7dPII)

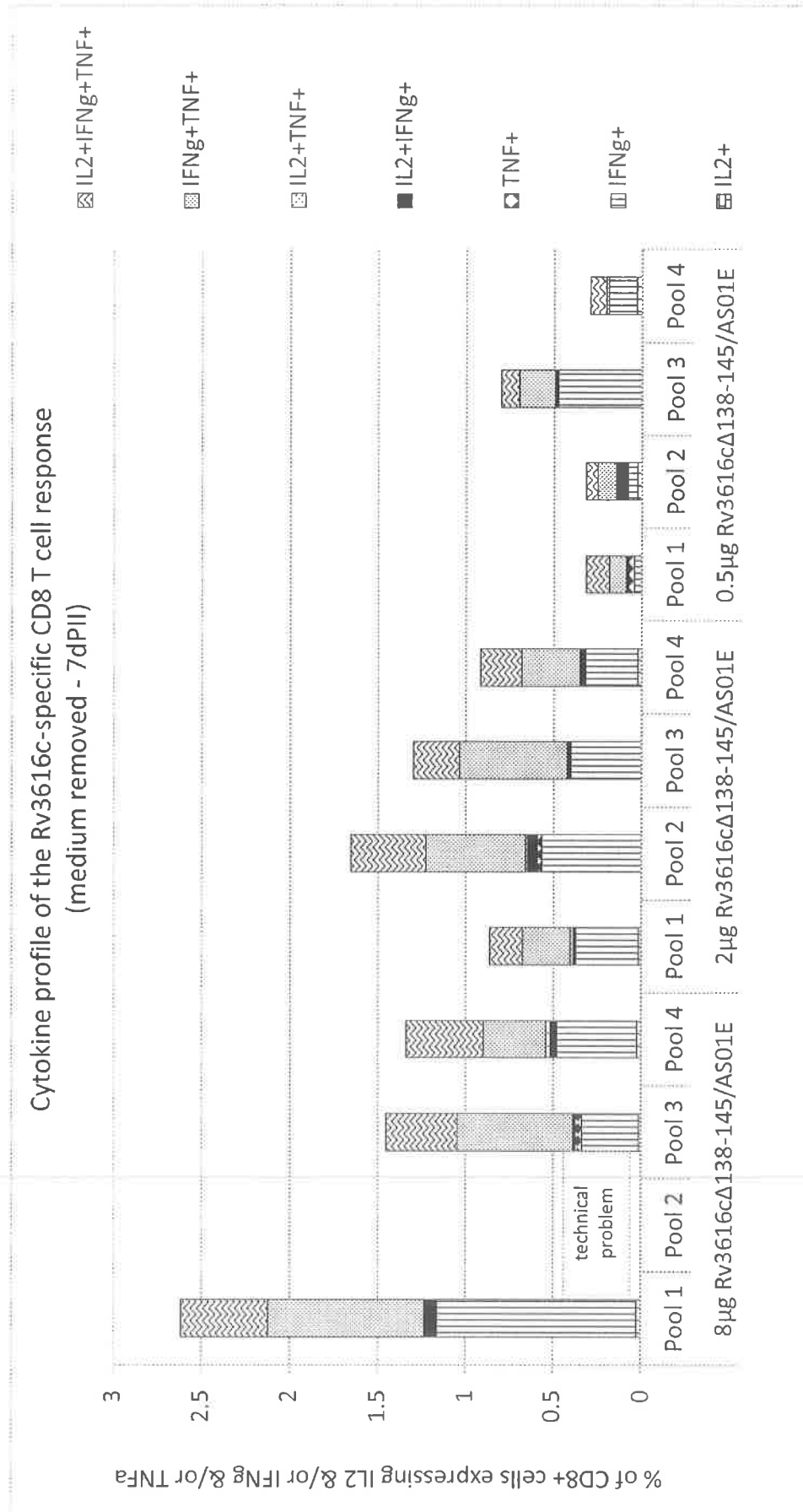


Figure 25

Cytokine profile of the Rv3616c -specific CD8 T cell response
(medium removed- 7dPIII)

