

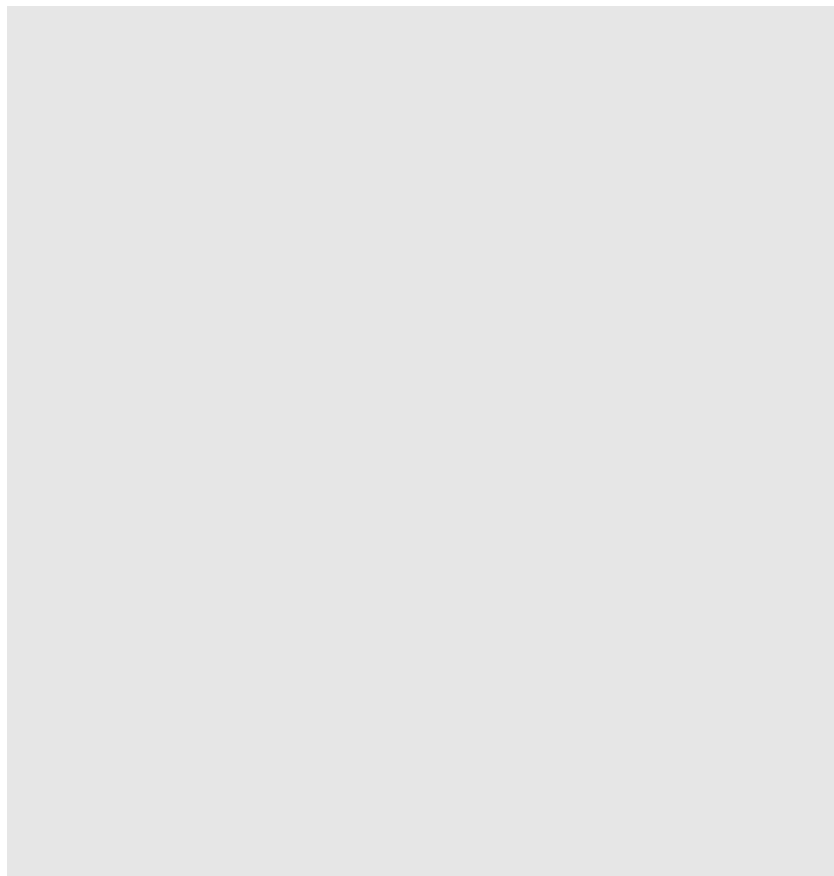


Increased IL-10-producing regulatory T cells are characteristic of severe cases of COVID-19

J a N ma^{1,2} , T sa P m^{1,2}, L Va b^{2,3}, Ca s P R ca⁴,
Ma a G ba^{2,5}, S Ja ss s^{1,2}, Ma h s W ms^{1,2}, O B⁴, P Va M^{3,6},
Ya g c Va H c³, CONTAGIOUS c -a h s, J s Wa s³, E s Wa s³,
A a L s^{1,2,4}  & S a a H mb -Ba²

¹VIB C f Ba a D s as R s a c h L, B g m
²D a m f M c b a l m m g, KUL -U s f L, L, B g m
³UZ L, L, B g m
⁴Lab a f L M a c S a g a D a m, T h Bab a a m l s, Camb g, UK
⁵P a c D a m, Aca m c C h H s a Q Fab a, U s ' L b B g s, B s s s, B g m
⁶VIB C f Ca c B g, L, B g m

Correspondence



INTRODUCTION

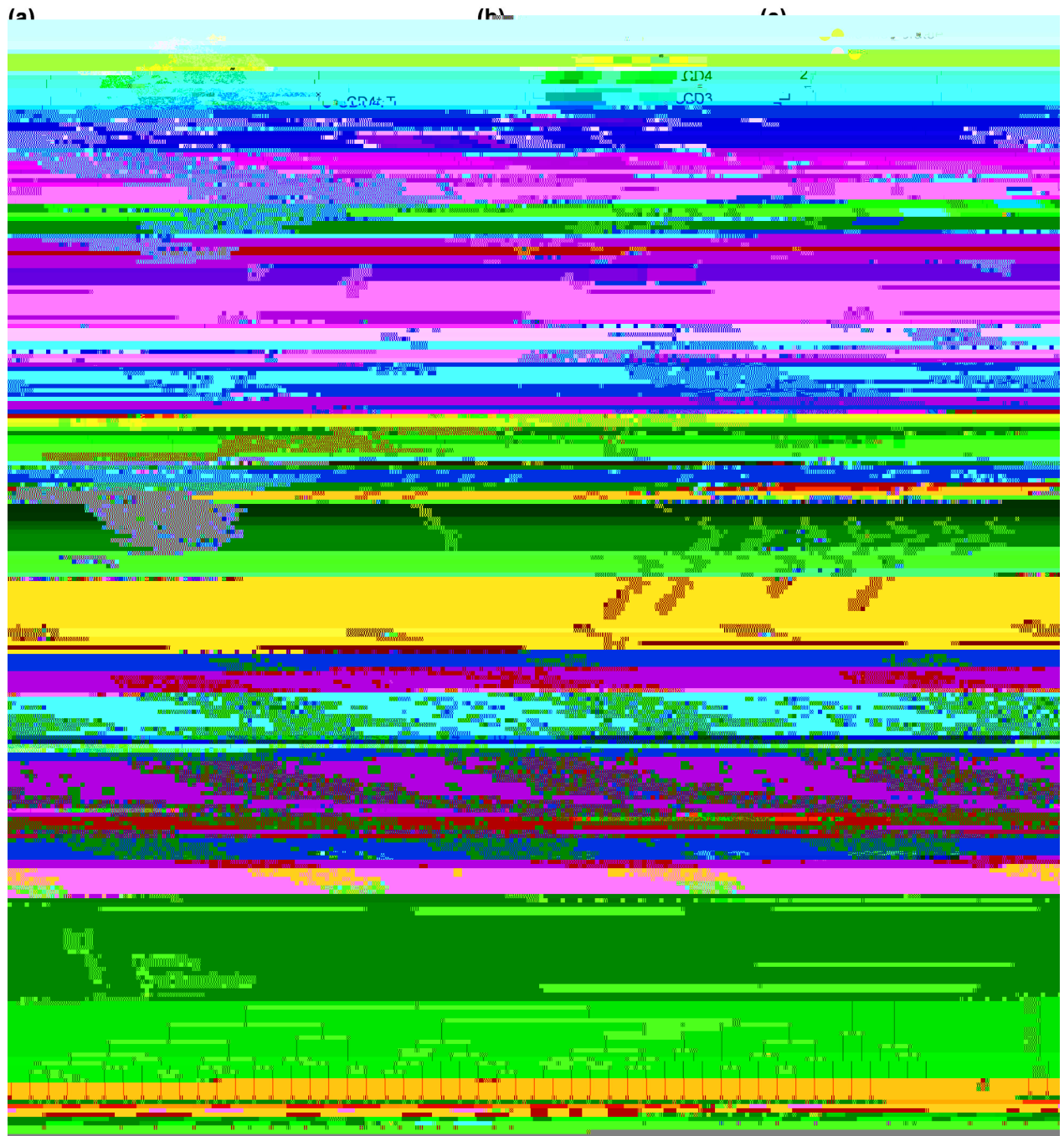


Figure 1. Flow cytometry plots showing cell populations for CD3, CD4, CD8, and FcγR3. (a) CD3 vs CD4. (b) CD8 vs FcγR3. CD4+ (green), CD8+ (red), and FcγR3+ (blue). (a) CD4+ (n = 23), CD8+ (n = 20), FcγR3+ (n = 6). (b) CD8+ (n = 23), FcγR3+ (n = 20), CD4+ (n = 6).

msa significant changes, the
as cases TCM as cases TEM
bgs COVID-19 cases, the
mbb COVID-19
cases (Fig. 2c). Gba cases, bcs,
bcs, the case of
ca CD4+ T cells bms
bba COVID-19
cases (Fig. 2). Aa, the
ca cases of the, m-ma
COVID-19 cases COVID-19 samples
mg (Fig. 2a). The aa
saa CD4 T-cells -aca
m COVID-19.

Us the same as the sg a
the FOXP3+ ga Tcs. Cs
bas cases ma si 13
ga T-cells sbss abg ca sc
caacs: a CTLA-4-, a CTLA-4+, TEM,
TEM CTLA-4+, TCM, TCM CTLA-4+, IL-2 c
CTLA-4+, IL-10 c, TNFα c CTLA-
4+, TNFα c CTLA-4-, IFN c
CTLA-4-, IFN c CTLA-4+ a HLA-DR+
cs (Fig. 3a a b, Sma fi 3a
a b). Qa the the sbss acss
ba the sa COVID-19 cases

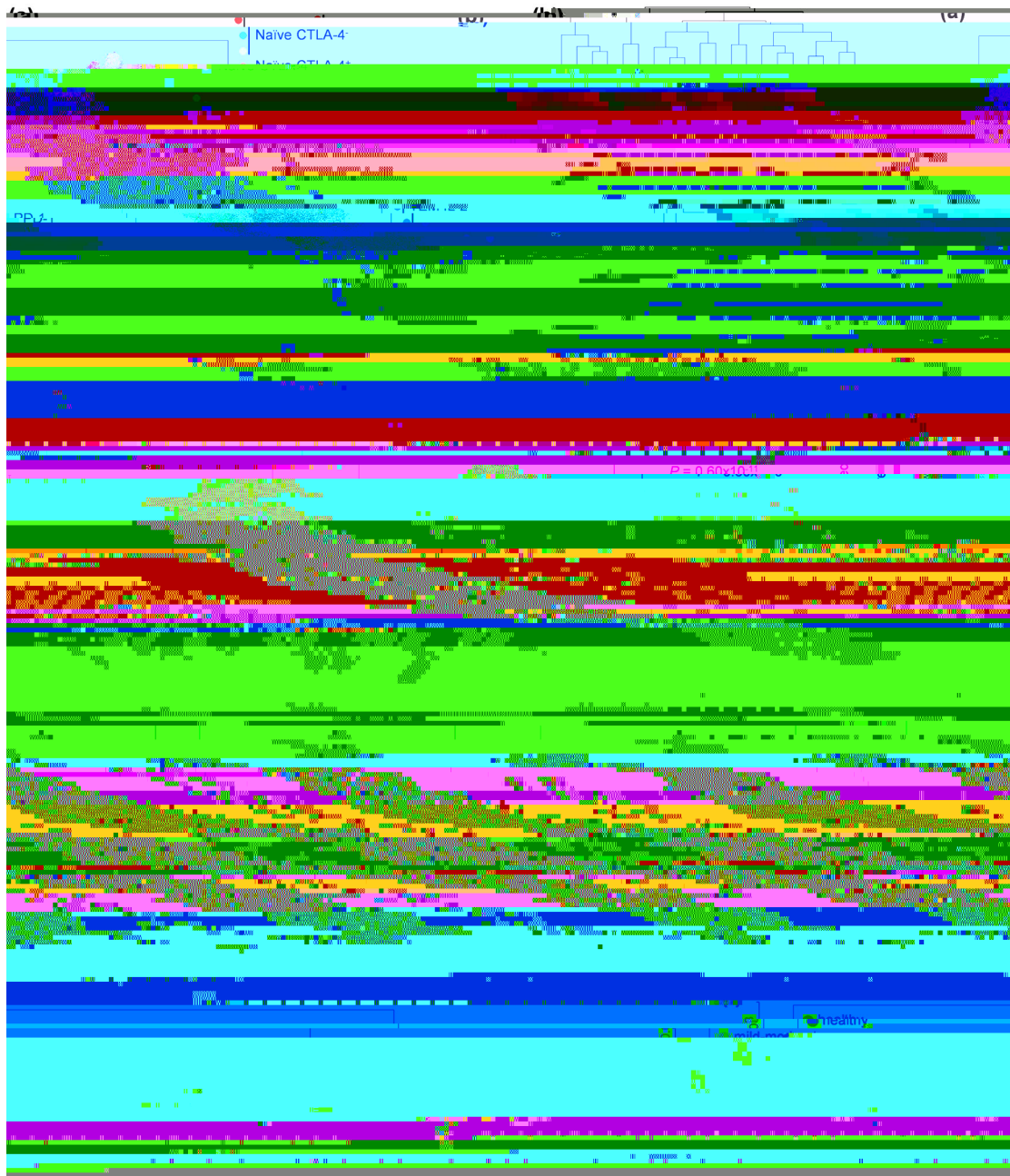


Figure 2. Δ CD4

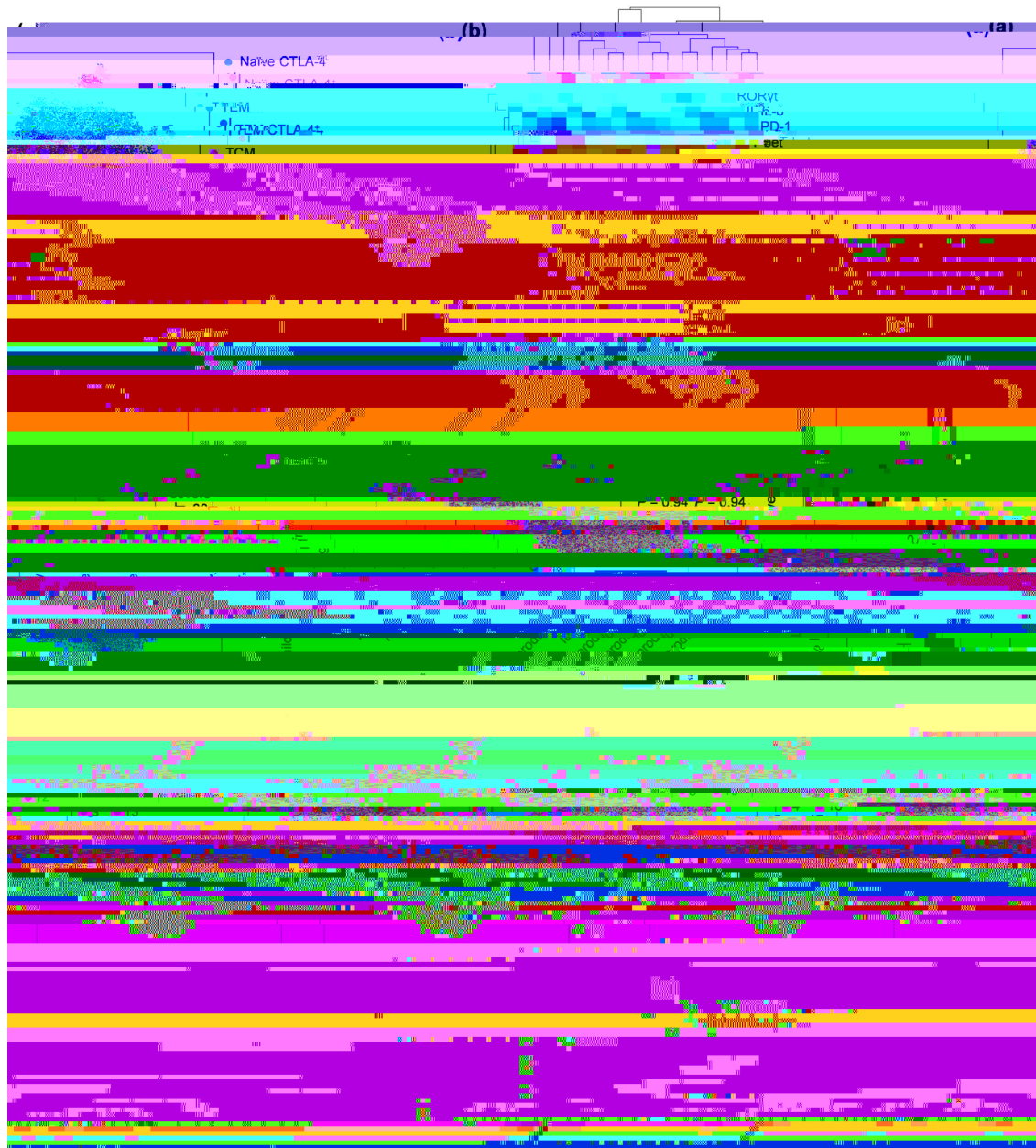


Figure 3. A. Heatmap showing gene expression profiles across multiple samples. B. Heatmap showing gene expression profiles across multiple samples (n = 6). C. Heatmap showing gene expression profiles across multiple samples (n = 6).

fic s.²⁵⁻²⁷ H , qea s fic H
SARS-C V-2 s a Hs s c T_H1/Tc1
q a sa . W H m c H s m f Hs
q a sa fa ma s , a q a
q a a s H q s c f a s g IL-6
m .^{1,28,29}

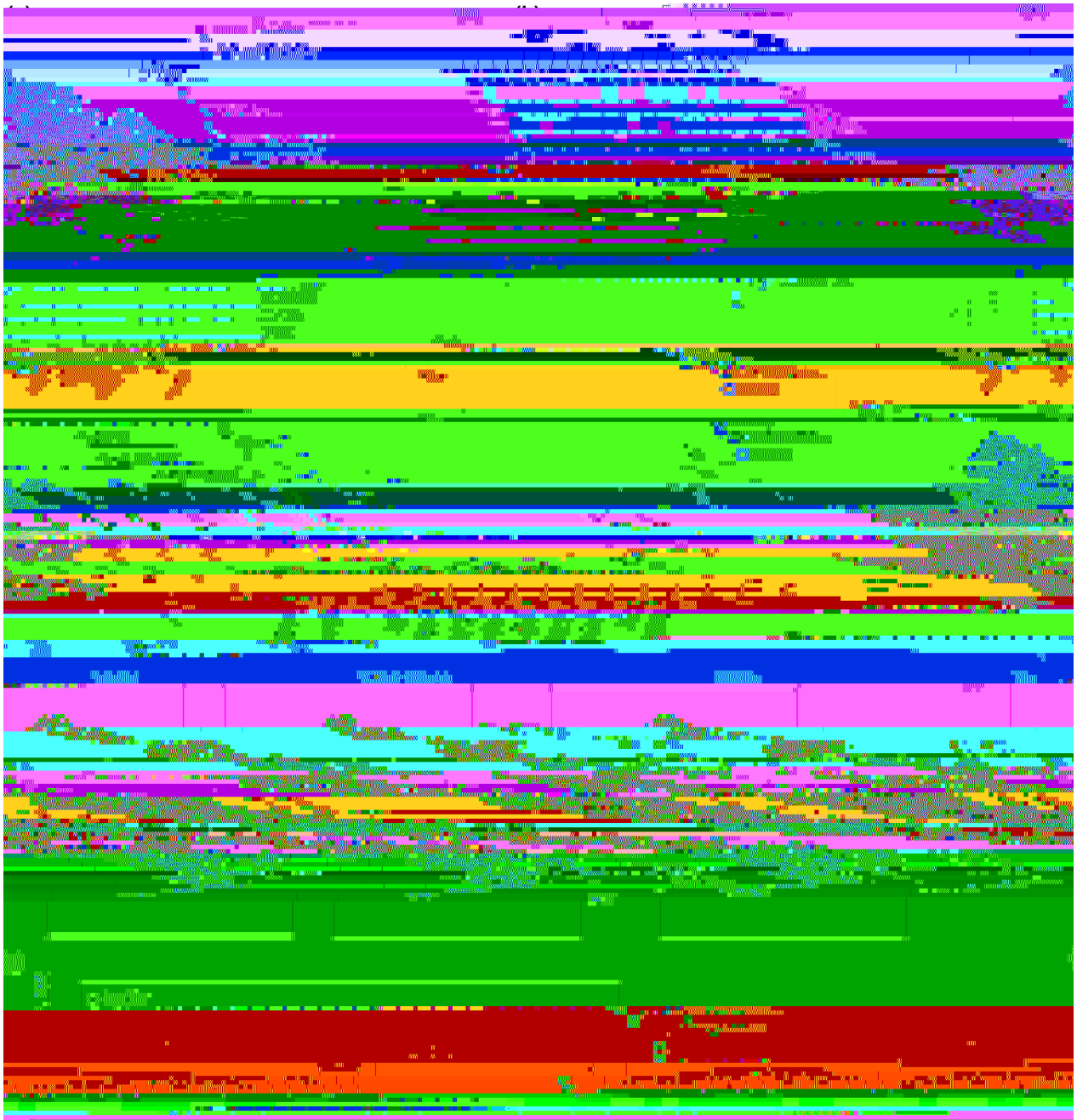


Figure 4. CD8⁺ ID-19 (n = 23) ID-19 (n = 6)

bas b ma f cas s g ss g m
s g ama . A m g g ss b
s pa g as h h h IL-10 c g
g a T c s h b f c a a g
mm . IL-10⁺ g a T c s a
s m ma c f ma s a f c s
a a ass ca h g - m ss c . l
s a f c s, IL-10 s s s s
a - a s s s^{44,50} a a s h mm
ac s f c h bac a.^{51,52} S c
s c a f c a g m a s a
ma ca s f a h a, a h as
f s m COVID-19 a s as ,⁵³⁻⁵⁵ c ss
IL-10 c b a T c s ma b a
fac COVID-19 c m s . l c c , h s
ca a a mm s s c a
s s f c a ca s a - a c
a s s s, g h a h g ca s a .
U h s a m , a (s c h
as h IL-10 a sa) c a
s a a a a mm a
h c ss b a a s s

b a f f h a a s s f m h ps://
s . g / ps m s/2713.

Flow cytometry analysis

Th c ca a a a s as a a s h g h s cc ss
F SOM c s a SNE ps a a g ps
s m a mb s f ac h s a m ps c g ps
a h s b s a m ps a mb s ps c g ps .
F s , g ma g s (CD3, CD4, CD8, FOXP3, CD19, CD14)
s s ps a c s bs s. S c , ac a
ma s (4-1BB, CCR7, CD25, CD45RA, CTLA-4, HLA-DR, IFN ,
IL-2, IL-4, IL-6, IL-10, IL-17a, PD-1, ROR , T-b , TNF α)
s s s h ps h ps c c s s f ac h c
s bs , a a s g F SOM a SNE. Th c h ac s cs f
ac h g i c s ass ss b m a s f h s g a m s
a h a m ps. C m ps s s b g ps (h a h ,
m a COVID-19 a s COVID-19) ps f m

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