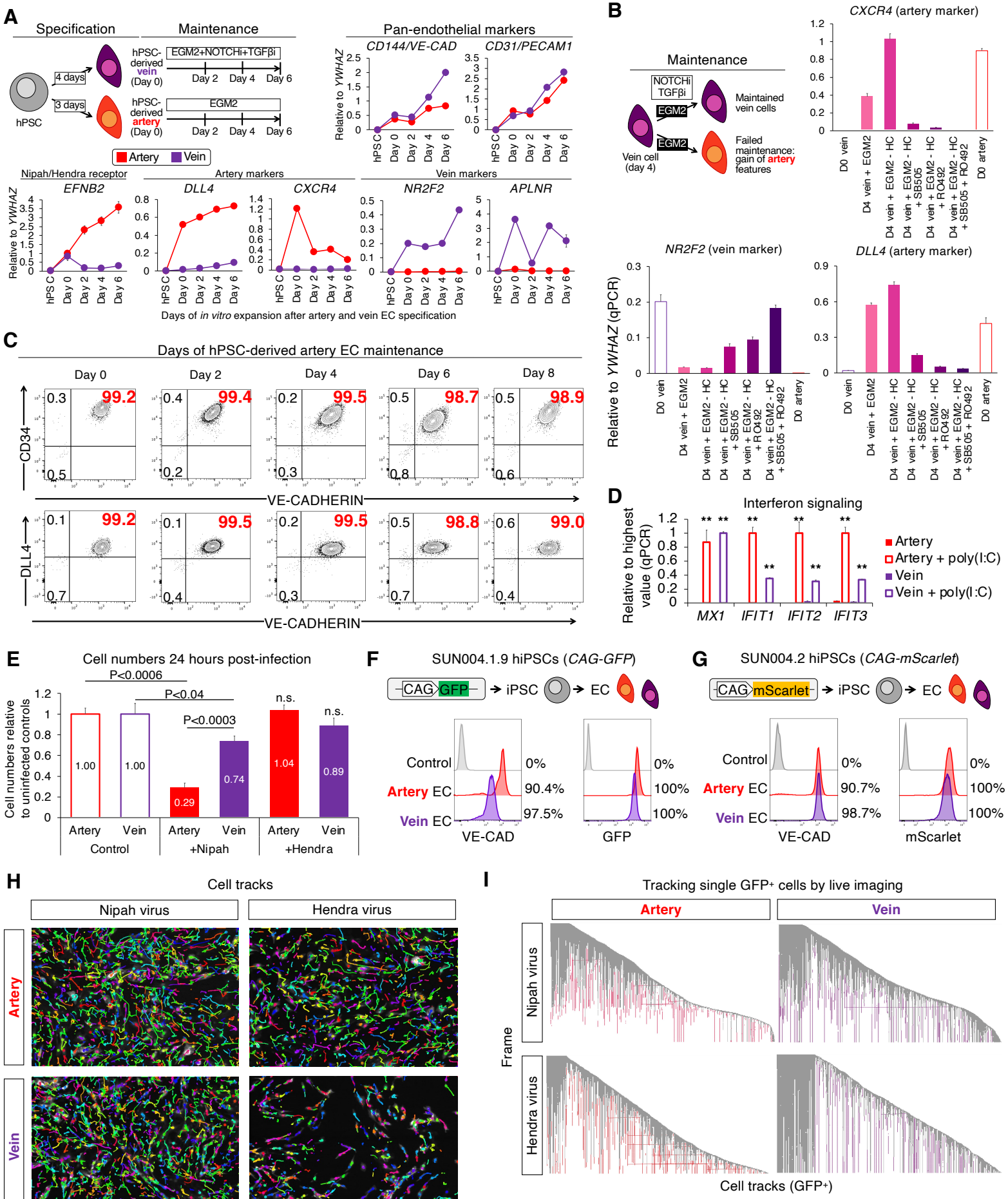
Figure S5


A
Specification
Maintenance
hPSC
4 days
3 days
hPSC-derived vein (Day 0)
hPSC-derived artery (Day 0)
EGM2+NOTCHi+TGFβi
EGM2
Day 2
Day 4
Day 6
Pan-endothelial markers
CD144/VE-CAD
CD31/PECAM1
Relative to YWHAZ
Artery
Vein
Nipah/Hendra receptor
Artery markers
Vein markers
EFNB2
DLL4
CXCR4
NR2F2
APLNR
hPSC
Day 0
Day 2
Day 4
Day 6
Days of in vitro expansion after artery and vein EC specification
B
Maintenance
NOTCHi
TGFβi
EGM2
Maintained vein cells
Failed maintenance: gain of artery features
Vein cell (day 4)
CXCR4 (artery marker)
NR2F2 (vein marker)
DLL4 (artery marker)
Relative to YWHAZ (qPCR)
D0 vein
D4 vein + EGM2
D4 vein + EGM2 - HC
D4 vein + EGM2 - HC + SB505
D4 vein + EGM2 - HC + RO492
D4 vein + EGM2 - HC + SB505 + RO492
D0 artery
C
Days of hPSC-derived artery EC maintenance
Day 0
Day 2
Day 4
Day 6
Day 8
CD34
DLL4
VE-CADHERIN
99.2
99.4
99.5
98.7
98.9
99.2
99.5
99.5
98.8
99.0
D
Interferon signaling
Relative to highest value (qPCR)
MX1
IFIT1
IFIT2
IFIT3
Artery
Artery + poly(I:C)
Vein
Vein + poly(I:C)
E
Cell numbers 24 hours post-infection
Cell numbers relative to uninfected controls
P<0.0006
P<0.04
P<0.0003
n.s.
n.s.
1.00
1.00
0.29
0.74
1.04
0.89
Artery
Vein
Control
+Nipah
+Hendra
F
SUN004.1.9 hiPSCs (CAG-GFP)
CAG
GFP
iPSC
EC
Control
Artery EC
Vein EC
0%
90.4%
97.5%
0%
100%
100%
VE-CAD
GFP
G
SUN004.2 hiPSCs (CAG-mScarlet)
CAG
mScarlet
iPSC
EC
Control
Artery EC
Vein EC
0%
90.7%
98.7%
0%
100%
100%
VE-CAD
mScarlet
H
Cell tracks
Nipah virus
Hendra virus
Artery
Vein
I
Tracking single GFP+ cells by live imaging
Artery
Vein
Nipah virus
Hendra virus
Frame
Cell tracks (GFP+)