Supplementary Material

Supplementary Figures and Tables

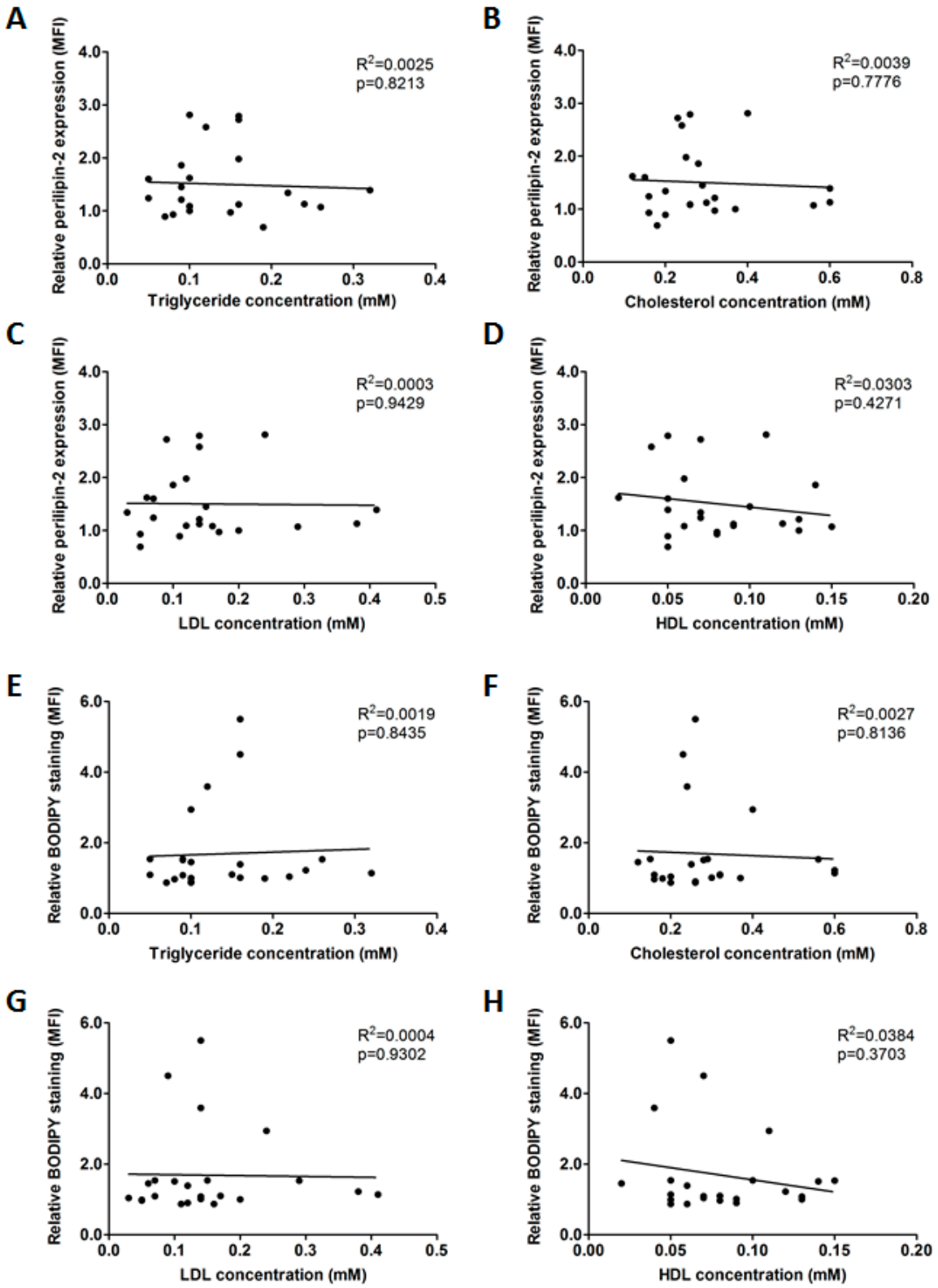

Figure S1. Perilipin-2 protein expression and lipid droplet formation in hPod are not correlated to lipid content of patient plasma. Lipid spectra of the plasmas used in this study were determined. Correlations of (**A-D**) median perilipin-2 fluorescence intensity (MFI) and (**E-H**) BODIPY MFI relative to healthy plasma, as measured with flow cytometry, with the concentration of triglycerides, cholesterol, low-density lipoprotein (LDL), and high-density lipoprotein (HDL) of hPod exposed to different plasmas.

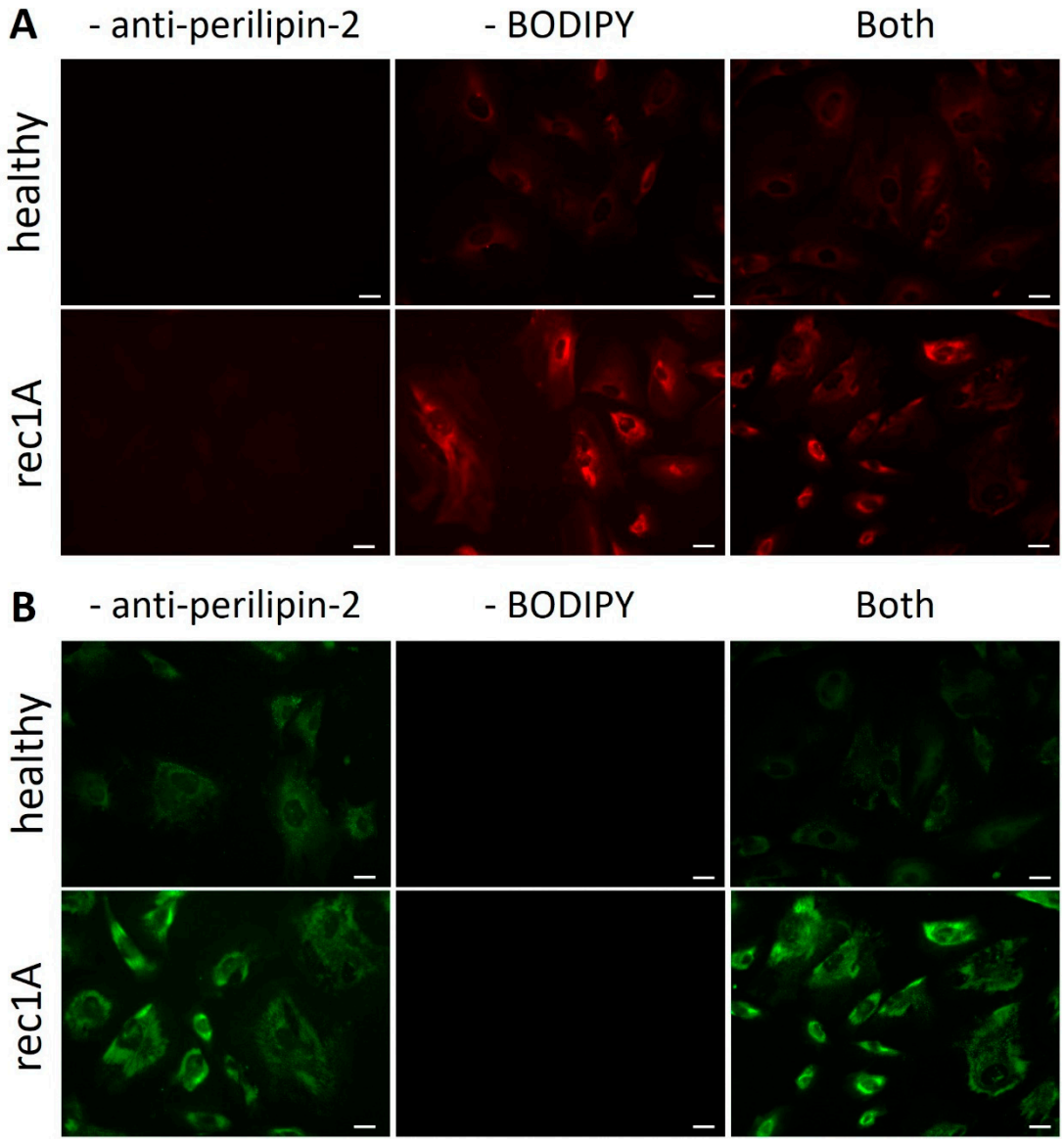

Figure S2. Fluorophore omission experiments for double staining of perilipin-2 and lipid droplets. Fluorescence microscopy images of hPod exposed to active disease FSGS plasma rec1A or to healthy plasma, labeled with anti-perilipin-2 antibody and BODIPY. (**A**) Red channel, perilipin-2, (**B**) green channel, BODIPY. Omission of anti-perilipin-2 antibody or BODIPY from the double staining demonstrated that staining intensities are not affected by combining both fluorophores, and that no signal is detected in the corresponding channel when a fluorophore is omitted. Scale bar: 50 µm. Healthy: pooled plasma from five healthy donors; rec: patient with recurrent FSGS.

Table S1. Primer sequences used for RT-PCR.

Primer	Primer sequence (5'→3')
PLIN2 forward	GAAGACCATCACCTCCGTGG
PLIN2 reverse	CGTCACAGCATCTTTTGCCC
POLR2B forward	GCCTACACGTGAAACATGCC
POLR2B reverse	AATGCCCGTCTCGCTAGTTC
EIF2A forward	GCACACCACGAAACACTGTC
EIF2A reverse	TCCTGGAGAAGGGCTGTTTC

Table S2. Proteins differentially expressed by hPod when comparing active disease vs (disease) control plasmas.

Gene name	Protein name	▲/▼	*P*-value
PLIN2	Perilipin-2	▲	0.074854
ITPRIP	Inositol 1,4,5-trisphosphate receptor-interacting protein	▼	0.074854
BASP1	Brain acid soluble protein 1	▼	0.074854
HDGFRP3	Hepatoma-derived growth factor-related protein	▼	0.074854
P4HA2	Prolyl 4-hydroxylase subunit alpha-2	▼	0.074854
IMPDH2	Inosine-5'-monophosphate dehydrogenase 2	▲	0.087582

▲ indicates upregulated and ▼indicates downregulated in hPod exposed to active disease plasmas compared to (disease) control plasmas. P-values are false discovery rate-adjusted P-values.

Table S3. Proteins differentially expressed by hPod when comparing high granularity vs no or low granularity-inducing plasmas.

Gene name	Protein name	▲/▼	*P*-value
PLIN2	Perilipin-2	▲	2.96E-14
HSD17B12	Very-long-chain 3-oxoacyl-CoA reductase	▲	3.74E-06
SYNGR2	Synaptogyrin-2	▲	4.56E-06
TMX3	Protein disulfide-isomerase TMX3	▲	0.000368
SDHA	Succinate dehydrogenase [ubiquinone] flavoprotein subunit, mitochondrial	▲	0.003117
ACOX1	Peroxisomal acyl-coenzyme A oxidase 1	▲	0.00332
RAB32	Ras-related protein Rab-32	▲	0.003772
DPYSL3	Dihydropyrimidinase-related protein 3	▼	0.003959
GPRC5A	Retinoic acid-induced protein 3	▲	0.004271
PVR	Poliovirus receptor	▲	0.004271
CYR61;CCN1	CCN family member 1	▲	0.004297
DHRS1	Dehydrogenase/reductase SDR family member 1	▲	0.004297
RAB18	Ras-related protein Rab-18	▲	0.004297

TGFB2	Transforming growth factor beta-2 proprotein	▲	0.004297
TMPO	Lamina-associated polypeptide 2, isoform beta/gamma	▼	0.004297
HM13	Minor histocompatibility antigen H13	▲	0.004706
VDP;USO1	General vesicular transport factor p115	▲	0.004706
CANX	Calnexin	▲	0.007299
ALDH18A1	Delta-1-pyrroline-5-carboxylate synthase	▲	0.00747
RANBP5;IPO5	Importin-5	▲	0.00747
SEC61A1	Protein transport protein Sec61 subunit alpha isoform 1	▲	0.008725
CAT	Catalase	▲	0.008773
SMC1A	Structural maintenance of chromosomes protein 1A	▼	0.008773
STAT1	Signal transducer and activator of transcription 1-alpha/beta	▼	0.009298
BAX	Apoptosis regulator BAX	▲	0.009609
KIF23	Kinesin-like protein KIF23	▼	0.009609
ANO10	Anoctamin-10	▲	0.009609
EHD2	EH domain-containing protein 2	▼	0.010003
NUDT9	ADP-ribose pyrophosphatase, mitochondrial	▲	0.011139
DSG2	Desmoglein-2	▲	0.013047
IKBIP;IKIP	Inhibitor of nuclear factor kappa-B kinase-interacting protein	▲	0.013502
APMAP	Adipocyte plasma membrane-associated protein	▲	0.01357
MBOAT7	Lysophospholipid acyltransferase 7	▲	0.013674
ADD3	Gamma-adducin	▼	0.013754
KPNA2	Importin subunit alpha-1	▼	0.016803
PBK	Lymphokine-activated killer T-cell-originated protein kinase	▼	0.016864
HMMR	Hyaluronan mediated motility receptor	▼	0.016864
COL1A2	Collagen alpha-2(I) chain	▲	0.017139
TAPBP	Tapasin	▲	0.017139
COX4I1	Cytochrome c oxidase subunit 4 isoform 1, mitochondrial	▲	0.01766
TAGLN2	Transgelin-2	▼	0.017692
NT5DC1	5'-nucleotidase domain-containing protein 1	▼	0.018339
RAB27A	Ras-related protein Rab-27A	▲	0.019169
RETSAT	All-trans-retinol 13,14-reductase	▲	0.019169
ADAR	Double-stranded RNA-specific adenosine deaminase	▼	0.019909
NCAPD2	Condensin complex subunit 1	▼	0.019909
BCAP31	B-cell receptor-associated protein 31	▲	0.020061
PRDX5	Peroxiredoxin-5, mitochondrial	▼	0.020061
LMAN1	Protein ERGIC-53	▲	0.020181
CERS2	Ceramide synthase 2	▲	0.022513
ACSL4	Long-chain-fatty-acid-CoA ligase 4	▼	0.022513
CTSD	Cathepsin D	▼	0.022513
MRPS18A	39S ribosomal protein S18a, mitochondrial	▼	0.024109
PYCR1;PIG45	Pyrroline-5-carboxylate reductase 1, mitochondrial	▲	0.024109
RPA1	Replication protein A 70 kDa DNA-binding subunit	▼	0.024109
LACTB	Serine beta-lactamase-like protein LACTB, mitochondrial	▲	0.025141
NIT2	Omega-amidase NIT2	▼	0.025215
HNRNPU	Heterogeneous nuclear ribonucleoprotein U	▼	0.027117
IQGAP3	Ras GTPase-activating-like protein IQGAP3	▼	0.027117
STAT2	Signal transducer and activator of transcription 2	▼	0.027117
PIGS	GPI transamidase component PIG-S	▲	0.027506
APP	Amyloid-beta precursor protein	▲	0.027834

GSTP1	Glutathione S-transferase P	▼	0.029653
CDKN1A	Cyclin-dependent kinase inhibitor 1	▲	0.029713
STT3A	Dolichyl-diphosphooligosaccharide--protein glycosyltransferase subunit	▲	0.029713
RAB11B/A	Ras-related protein Rab-11B or Ras-related protein Rab-11A	▲	0.031584
WDR36	WD repeat-containing protein 36	▲	0.032685
MCM7	DNA replication licensing factor MCM7	▼	0.032946
POLDIP3	Polymerase delta-interacting protein 3	▼	0.032946
TMEM205	Transmembrane protein 205	▲	0.032946
CPT1A	Carnitine O-palmitoyltransferase 1, liver isoform	▲	0.039222
PRPF40A	Pre-mRNA-processing factor 40 homolog A	▼	0.041454
DDX58	Antiviral innate immune response receptor RIG-I	▼	0.041902
RPN1	Dolichyl-diphosphooligosaccharide--protein glycosyltransferase subunit 1	▲	0.046052
ACADM	Medium-chain specific acyl-CoA dehydrogenase, mitochondrial	▲	0.047478
CXCL1	Growth-regulated alpha protein	▲	0.047478
HNRNPH2	Heterogeneous nuclear ribonucleoprotein H2	▼	0.047478
NUDT4	Diphosphoinositol polyphosphate phosphohydrolase 2	▲	0.047478
PARP14	Protein mono-ADP-ribosyltransferase PARP14	▼	0.047478
SLC25A22	Mitochondrial glutamate carrier 1	▲	0.047478
VMP1	Vacuole membrane protein 1	▲	0.047478
OAT	Ornithine aminotransferase, mitochondrial	▲	0.049486

▲ indicates upregulated and ▼indicates downregulated in hPod exposed to high granularity-inducing active disease plasmas compared to no or low granularity-inducing plasmas. P-values are false discovery rate-adjusted P-values.

Table S4. Proteins differentially expressed by hPod involved in (sphingo)lipid, fatty acid/triglyceride and lipoprotein metabolism.

lipid, fatty acid, fatty-acyl, triglyceride	**sphingolipid**	**lipoprotein**
ACADM ▲	BAX ▲	APP ▲
ACOX1 ▲	CERS2 ▲	CTSD ▼
ACSL4 ▼		
CAT ▲		
CPT1A ▲		
HSD17B12 ▲		
LACTB ▲		
MBOAT7 ▲		
PLIN2 ▲		
RAB18 ▲		

▲ indicates upregulated and ▼indicates downregulated in hPod exposed to high granularity-inducing active disease plasmas compared to no or low granularity-inducing plasmas.