

**Supplemental Table 1.** Antibodies and reagents.

Flow Cytometry		
$\alpha$ -muCD19-Pacific Blue™	BioLegend	Cat. # 115523 (Clone 6D5)
$\alpha$ -muCD19-PE-Cy7	TONBO Biosciences	Cat. # 60-0193 (Clone 1D3)
$\alpha$ -muB220-PE-Cy7	BioLegend	Cat. # 103222 (RA3-6B2)
$\alpha$ -muCD138-PE-Cy7	BioLegend	Cat. # 142513 (Clone 281-2)
$\alpha$ -muGL7-FITC	BioLegend	Cat. # 144603 (Clone GL7)
$\alpha$ -muCD40-PE	BioLegend	Cat. # 124609 (Clone 3/23)
$\alpha$ -muIgM-FITC	BioLegend	Cat. # 406506 (Clone RMM-1)
$\alpha$ -muIgM-PE	BioLegend	Cat. # 406507 (Clone RMM-1)
$\alpha$ -muIgD-APC	BioLegend	Cat. # 405714 (Clone 11-26c.2a)
$\alpha$ -muIgG1-FITC	BioLegend	Cat. # 406606 (Clone RMG1-1)
$\alpha$ -muIgG1-APC	BioLegend	Cat. # 406609 (Clone RMG1-1)
$\alpha$ -muIgG3-FITC	BD Biosciences	Cat. # 553403 (Clone R40-82)
$\alpha$ -muIgG3-BV421™	BD Biosciences	Cat. # 565808 (Clone R40-82)
$\alpha$ -muIgG2a-FITC	BD Biosciences	Cat. # 553390 (Clone R19-15)
$\alpha$ -muIgG2a-APC	BioLegend	Cat. # 407110 (Clone RMG2a-62)
$\alpha$ -muIgG2b-FITC	BioLegend	Cat. # 406705 (Clone RMG2b-1)
$\alpha$ -muIgA-FITC	eBioscience	Cat. # 11-4204-82 (Clone mA-6E1)
$\alpha$ -muIgE-biotin	BioLegend	Cat. # 406904 (Clone RME-1)
$\alpha$ -muCD3-APC-Cy7	BioLegend	Cat. # 100221 (Clone 17A2)
$\alpha$ -muCD4-APC	TONBO Bioscience	Cat. # 20-0041 (Clone GK1.5)
$\alpha$ -muCD4-PeCP-Cy5.5	eBioscience	Cat. # 45-0042-82 (Clone RM4-5)
$\alpha$ -muCD8b-PE	eBioscience	Cat. # 12-0083-81 (Clone H35-17.2)
$\alpha$ -muCD8b-Horizon™ V500	BD Biosciences	Cat. # 560776 (Clone 53-6.7)
$\alpha$ -muCD11b-biotin	BioLegend	Cat. # 101204 (Clone m1/70)
$\alpha$ -muCD11c-APC-Cy7	BioLegend	Cat. # 117323 (Clone N418)
$\alpha$ -RAB7-Alexa Flour® 647	Abcam	Cat. # 198337 (Clone EPR7589)
Isotype control-Alexa Flour® 647	Abcam	Cat. # 199093 (Clone EPR25A)
$\alpha$ -p-NF- $\kappa$ B p65-Alexa Flour®	Cell Signaling	Cat. # 4886 (Clone 93H1)
$\alpha$ -p-ERK1/2-BV421™	BioLegend	Cat. # 369510 (Clone 6B8B69)
Immunoblotting		
$\alpha$ -RAB7	Abcam	Cat. # 137029 (Clone EPR7589)
$\alpha$ -TRAF6	Abcam	Cat. # 40675 (Clone EP592Y)
$\alpha$ -ubiquitin (linkage-specific)	Abcam	Cat. # 179434 (Clone EPR8590-448)
$\alpha$ -RAB5A	Abcam	Cat. # 109534 (Clone EPR5438)
$\alpha$ -HA tag	Sigma	Cat. # 11867423001 (Clone 3F10)
$\alpha$ - $\beta$ -actin	Sigma	Cat. # A5441 (AC-15)
$\alpha$ -GAPDH	GeneTex	Cat. # 239 (Clone GT239)

$\alpha$ -TAK1	Cell Signaling	Cat. # 5206 (Clone D94D7)
$\alpha$ -IKK $\gamma$	Cell Signaling	Cat. # 2685 (polyclonal)
$\alpha$ -TLR4	Santa Cruz	Cat. # sc-293072 (Clone 25)
$\alpha$ -IRAK1	Santa Cruz	Cat. # sc-5288 (Clone F-4)
Immunofluorescence staining		
$\alpha$ -RAB7	Abcam	Cat. # 137029 (Clone EPR7589)
$\alpha$ -CD40	Abcam	Cat. # 25298 (Clone 1C10)
$\alpha$ -LAMP1	ThermoFisher	Cat. # 14-1071-82 (Clone 1D4B)
$\alpha$ -muCD40	Abcam	Cat. # 25298 (Clone 1C10)
$\alpha$ -ratIgG Alexa Flour <sup>®</sup> 488	BioLegend	Cat. # 405418
$\alpha$ -rabbitIgG Alexa Flour <sup>®</sup> 647	Cell Signaling	Cat. # 4414
$\alpha$ -ratIgG Alexa Flour <sup>®</sup> 488	BioLegend	Cat. # 405418
$\alpha$ -muIgG Alexa Flour <sup>®</sup> 594	ThermoFisher	Cat. # A-11005
$\alpha$ -muIgG Alexa Flour <sup>®</sup> 488	BioLegend	Cat. # 405319
Immunoprecipitation		
$\alpha$ -RAB7	Santa Cruz	Cat. # sc-376362 (Clone B3)
$\alpha$ -TRAF6	Santa Cruz	Cat. # sc-8409 (Clone D-10)
$\alpha$ -RAB5A	Santa Cruz	Cat. # sc-46692 (Clone D-11)
Normal mouse IgG	Santa Cruz	Cat. # sc-2025
ELISA		
$\alpha$ -muIgM-UNLB	SouthernBiotech	Cat. # 1020-01
$\alpha$ -muIgG-UNLB	SouthernBiotech	Cat. # 1030-01
$\alpha$ -muIgA-UNLB	SouthernBiotech	Cat. # 1040-01
$\alpha$ -muIgM-biotin	SouthernBiotech	Cat. # 1020-08
$\alpha$ -muIgG1-biotin	SouthernBiotech	Cat. # 1070-08
$\alpha$ -muIgG2a-biotin	SouthernBiotech	Cat. # 1080-08
$\alpha$ -muIgG2b-biotin	SouthernBiotech	Cat. # 1090-08
$\alpha$ -muIgG3-biotin	SouthernBiotech	Cat. # 1100-08
$\alpha$ -muIgA-biotin	SouthernBiotech	Cat. # 1040-08
$\alpha$ -muIgG, HRP-linked	Cell Signaling	Cat. # 7076S
$\alpha$ -rabbitIgG, HRP-linked	Cell Signaling	Cat. # 7074S
Other flow cytometry reagents		
Fixable Viability Dye eFlour <sup>™</sup>	eBioscience	Cat. # 65-0865-14
Fixable Viability Dye eFlour <sup>™</sup>	eBioscience	Cat. # 65-0866-14
NP <sub>23</sub> -PE	Biosearch Technologies	Cat. # N-5070-1
APC BrdU flow kit	BD Biosciences	Cat. # 552598
CellTrace <sup>™</sup> CFSE kit	ThermoFisher	Cat. # C34554
CellTrace <sup>™</sup> Yellow kit	ThermoFisher	Cat. # C34573