**Supplemental Methods**

NFAM1 inserts (sequence below) were cloned into pcDNA vector.

pcDNA\_HuNFAM1\_11387 (WT NFAM1. Used for Figure 1E)

**3’**ctagagccaccatggagaatcagcccgtgcgatggcgagcccttcccggccttccaaggcctcctggtctgcctgcagctccttggctgcttctgggcgtgctgttgctgcccggtaccctgaggctcgctggggggcagagcgtgactcacaccggcctgcccataatggcctcattggcaaacaccgccatctccttctcctgtaggatcacctatccctacactccccaattcaaggtgttcaccgtgtcctacttccacgaggatttgcagggccagaggtcccctaagaagcccaccaactgccaccctggcctcggcaccgagaaccagagccataccctggattgccaggtgaccctggtgctgcctggcgcttccgcaaccggtacatactactgctccgtgcactggccccattccaccgtgcgcggctccggcaccttcatcctggtgagggacgccggctatcgtgagccccctcagagtccacagaaactgctgctgttcggcttcactgggctcctctccgtacttagcgtcgtgggaacagccctcctgctgtggaacaagaagaggatgcgcggacccggaaaggatcccacccgcaaatgccctgacccccgatctgcctccagtcccaagcaacacccatccgaatctgtgtataccgcactgcaaaggcgggagaccgaggtgtacgcctgcattgagaacgaagacggctcttcccctaccgcaaagcagtcaccactgtcccaggagaggccacacaggttcgaagatgacggcgagcttaacctggtttatgagaacttgtaatgaa**5’**

pcDNA\_HuNFAM1\_11392 (Full length NFAM1 with C-terminal FLAG tag. Used for Supplemental Figure 1A-C).

**3’**ctagagccaccatggagaaccagcccgtaaggtggcgagccctgcctggcctccctcgaccccctgggttgccagcagccccatggctcctgctgggggtacttctgcttccaggaactctgcgcttggcaggcggtcaaagcgtgacacacaccggactgcccataatggcttctcttgccaataccgcaatctccttcagttgcaggattacctacccctacacaccccaattcaaggtgttcaccgtgtcctacttccacgaggacctccaggggcaaaggtcccccaaaaagcccaccaactgccatcccgggctcggcactgaaaaccaatcccacaccctggattgccaggtgaccctggtactgcccggagcatccgccaccggcacctactactgttccgtgcactggccccacagcaccgtcaggggctctggcacattcatcctggtgagggacgccggctacagggaaccccctcagtcaccccagaagctgctgcttttcggctttacaggactgctgtccgtgctctccgtggtgggaacagcccttcttctgtggaacaaaaagaggatgcgtggcccaggcaaggaccccacaaggaagtgccccgaccccaggtccgcctcctctcccaagcaacacccctccgagtccgtttacaccgccttgcaaaggcgtgagaccgaggtttacgcctgcatcgagaacgaagacggctccagccctactgctaagcaatcccccctgtcccaagaacgtccccataggtttgaggacgacggcgagctgaacctggtgtatgagaacttggctggctccgctgattacaaggacgatgacgacaaataatgaa**5’**

pcDNA\_HuNFAM1\_11391 (Full length NFAM1 with N-terminal FLAG tag. Used for Supplemental Figure 1A-C).

**3’**ctagagccaccatggagaaccagcccgtaaggtggcgagccctgcctggcctccctcgaccccctgggttgccagcagccccatggctcctgctgggggtacttctgcttccaggaactctgcgcttggcaggcggtcaatctgtaaccgactacaaagatgacgacgacaaggccggctccgcccaaagcgtgacacacaccggactgcccataatggcttctcttgccaataccgcaatctccttcagttgcaggattacctacccctacacaccccaattcaaggtgttcaccgtgtcctacttccacgaggacctccaggggcaaaggtcccccaaaaagcccaccaactgccatcccgggctcggcactgaaaaccaatcccacaccctggattgccaggtgaccctggtactgcccggagcatccgccaccggcacctactactgttccgtgcactggccccacagcaccgtcaggggctctggcacattcatcctggtgagggacgccggctacagggaaccccctcagtcaccccagaagctgctgcttttcggctttacaggactgctgtccgtgctctccgtggtgggaacagcccttcttctgtggaacaaaaagaggatgcgtggcccaggcaaggaccccacaaggaagtgccccgaccccaggtccgcctcctctcccaagcaacacccctccgagtccgtttacaccgccttgcaaaggcgtgagaccgaggtttacgcctgcatcgagaacgaagacggctccagccctactgctaagcaatcccccctgtcccaagaacgtccccataggtttgaggacgacggcgagctgaacctggtgtatgagaacttgtaatgaa**5’**

pcDNA\_HuNFAM1\_11434 (CD8 extracellular and transmembrane domains fused to WT NFAM intracellular domain. Used for Supplemental Figure 1D)

**3’**ctagagccaccatggccctgcccgtaaccgccctgctcctgcccctggcactgctgctgcatgccgccagacccagccagttcagggtgagtcctctggacaggacctggaaccttggcgagaccgtggagctcaagtgtcaggtgctcctcagtaaccccacgtccggatgcagctggctttttcagccccgaggtgcagcggccagcccgaccttcctgctgtacctgagccagaacaagcccaaagccgccgaggggcttgacacccagaggtttagtggcaagaggctgggcgacacattcgtgctgaccctgagcgacttcaggagggagaatgagggctactacttctgcagcgccttgtccaacagcatcatgtacttcagccacttcgtgcccgtgttcttgcccgccaaacctaccaccacaccggctccgagaccccctacgccagcgcccaccatcgctagccaacccttgtctctgaggcccgaagcgtgccgaccggcagccggaggcgccgtgcacaccagaggcttggacttcgcctgcgacatctacatctgggcaccgctcgctgggacgtgtggcgtgctcttgctgtcactcgtgataactctctggaacaagaaaaggatgcgcggaccaggcaaggatcccaccaggaagtgccccgatccgaggagcgccagcagccccaagcagcatccgagcgagagcgtctacacagccttgcagaggcgggagaccgaagtgtacgcctgcattgagaacgaggacggaagctcacctaccgcaaagcaatccccactgagtcaggaaagaccccataggttcgaagacgacggagagctgaacctggtttacgagaatctgtaatgaa**5’**

pcDNA\_HuNFAM1\_11435 (CD8 extracellular and transmembrane domains fused to NFAM1 intracellular domain with mutated ITAM. Used for Supplemental Figure 1D).

**3’**ctagagccaccatggccctgcccgtaaccgccctgctcctgcccctggcactgctgctgcatgccgccagacccagccagttcagggtgagtcctctggacaggacctggaaccttggcgagaccgtggagctcaagtgtcaggtgctcctcagtaaccccacgtccggatgcagctggctttttcagccccgaggtgcagcggccagcccgaccttcctgctgtacctgagccagaacaagcccaaagccgccgaggggcttgacacccagaggtttagtggcaagaggctgggcgacacattcgtgctgaccctgagcgacttcaggagggagaatgagggctactacttctgcagcgccttgtccaacagcatcatgtacttcagccacttcgtgcccgtgttcttgcccgccaaacctaccaccacaccggctccgagaccccctacgccagcgcccaccatcgctagccaacccttgtctctgaggcccgaagcgtgccgaccggcagccggaggcgccgtgcacaccagaggcttggacttcgcctgcgacatctacatctgggcaccgctcgctgggacgtgtggcgtgctcttgctgtcactcgtgataactctctggaacaagaaaaggatgcgcggaccaggcaaggatcccaccaggaagtgccccgatccgaggagcgccagcagccccaagcagcatccgagcgagagcgtcttcacagccttgcagaggcgggagaccgaagtgtttgcctgcattgagaacgaggacggaagctcacctaccgcaaagcaatccccactgagtcaggaaagaccccataggttcgaagacgacggagagctgaacctggtttacgagaatctgtaatgaa**5’**