CLAIMS

What is claimed is:

1. A compound comprising formula (I), or a pharmaceutically acceptable salt, stereoisomer, or solvate thereof:

$$[Ab]_{k'}—[CON]_{h}—[Linker]_{i}—[CON]_{h'}—[CRBM]_{j'} \quad (I),$$

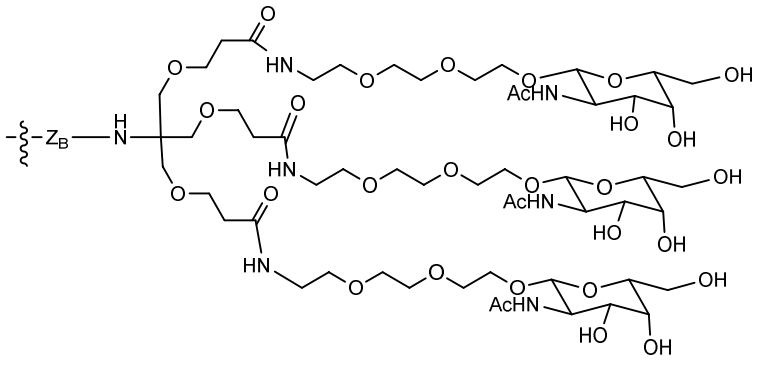
wherein:

the Ab is an antibody selected from the group consisting of abagovomab, abrezekimab, adalimumab, aducanumab, afasevikumab, afelimomab, alirocumab, altumomab pentetate, andecaliximab, anrukinzumab, arcitumomab, ascrinvacumab, atezolizumab, atidortoxumab, atinumab, avelumab, bapineuzumab, bavituximab, belimumab, bermekimab, besilesomab, bevacizumab, biciromab, bimekizumab, birtamimab, blosozumab, bococizumab, brazikumab, briakinumab, brodalumab, brolucizumab, brontictuzumab, burosumab, cabiralizumab, canakinumab, cantuzumab ravtansine, caplacizumab, carlumab, cergutuzumab amunaleukin, certolizumab pegol, cibisatamab, clazakizumab, clivatuzumab tetraxetan, concizumab, crenezumab, dectrekumab, denosumab, dezamizumab, diridavumab, domagrozumab, dorlimomab aritox, durvalumab, dusigitumab, eculizumab, edobacomab, efungumab, eldelumab, elezanumab, elsilimomab, emactuzumab, emapalumab, emicizumab, enokizumab, epitumomab cituxetan, eptinezumab, erenumab, evinacumab, evolocumab, faricimab, fasinumab, fezakinumab, ficlatuzumab, firivumab, fletikumab, fontolizumab, fremanezumab, fresolimumab, frovocimab, frunevetmab, fulranumab, galcanezumab, gantenerumab, gatipotuzumab, gedivumab, gevokizumab, gimsilumab, girentuximab, golimumab, gosuranemab, guselkumab, idarucizumab, igovomab, imalumab, indatuximab ravtansine, infliximab, istiratumab, ixekizumab, labetuzumab, lacnotuzumab, lampalizumab, lanadelumab, landogrozumab, lebrikizumab, lemalesomab, lendalizumab, lenzilumab, lerdelimumab, lesofavumab, ligelizumab, lodelcizumab, lokivetmab, lutikizumab, marstacimab, mepolizumab, metelimumab, mirikizumab, nacolomab tafenatox, namilumab, narnatumab, navivumab, naxitamab, nebacumab, nemolizumab, nerelimomab, nesvacumab, netakimab, nofetumomab merpentan, obiltoxaximab, oleclumab, olendalizumab, olokizumab, omalizumab, onartuzumab, oregovomab, orticumab, otilimab, ozanezumab, ozoralizumab, parsatuzumab, pascolizumab, pasotuxizumab, pateclizumab, pemtumomab, perakizumab, pexelizumab, placulumab, ponezumab, prasinezumab, pritoxaximab, quilizumab, radretumab, ralpancizumab, ranevetmab, ranibizumab, ravulizumab, raxibacumab, regn-eb3, remtolumab, reslizumab, rilotumumab, risankizumab, romilkimab, romosozumab, rontalizumab,

rosmantuzumab, sacituzumab govitecan, samrotamab vedotin, sarilumab, secukinumab, setoxaximab, setrusumab, sifalimumab, siltuximab, simtuzumab, sirukumab, sofituzumab, sofituzumab, sofituzumab vedotin, solanezumab, sontuzumab, stamulumab, sulesomab, sutimlimab, suvizumab, suvratoxumab, tabalumab, tacatuzumab tetraxetan, talizumab, tanezumab, tefibazumab, telimomab aritox, tesidolumab, tezepelumab, tibulizumab, tildrakizumab, timolumab, tisotumab vedotin, tralokinumab, trevogrumab, urtoxazumab, ustekinumab, vanucizumab, vapaliximab, varisacumab, vepalimomab, vesencumab, vobarilizumab, vunakizumab, and xentuzumab;

wherein the Ab is connected to the [CON] or [Linker] through an amide bond formed by the [CON] or [Linker] with a lysine residue side chain in the Ab;

CRBM has the structure




;

wherein:

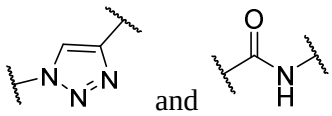
$Z_B$ is absent, $-(CH_2)_{IM}-$, $-C(=O)-(CH_2)_{IM}-$, or $-C(=O)(CH_2)_{IM}-NR^M-$;

$R^M$ is H or $C_1$-$C_3$ alkyl optionally substituted with 1-2 hydroxyl groups; and

each occurrence of IM is independently 0, 1, 2, 3, 4, 5, or 6;

CON is independently at each occurrence selected from the group consisting of:

a) a group selected from the group consisting of:

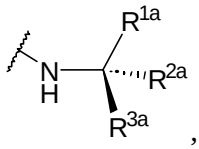



and




;

b) a group according to the structure:




,

wherein:

$R^{1a}$, $R^{2a}$, and $R^{3a}$ are each independently H, $-(CH_2)_{M1}-$, $-(CH_2)_{M2}C(=O)_{M3}(NR^4)_{M3}-(CH_2)_{M2}-$, $-(CH_2)_{M2}(NR^4)_{M3}C(O)_{M3}-(CH_2)_{M2}-$, or $-(CH_2)_{M2}O-(CH_2)_{M1}-C(O)NR^4-$,

with the proviso that $R^{1a}$, $R^{2a}$, and $R^{3a}$ are not simultaneously H;

each occurrence of M1 is independently 1, 2, 3, or 4;

each occurrence of M2 is independently 0, 1, 2, 3, or 4;

each occurrence of M3 is independently 0 or 1; and

each occurrence of $R^4$ is independently H, $C_1$-$C_3$ alkyl, $C_1$-$C_6$ alkanol, or $-C(O)(C_1$-$C_3$ alkyl),

with the proviso that M2 and M3 within the same $R^{1a}$, $R^{2a}$ and $R^{3a}$ are not simultaneously 0;

Linker is independently at each occurrence selected from the group consisting of:

i) a polyethyleneglycol linker having from 2 to 12 ethylene glycol residues,

ii) a polypropylene glycol or polypropylene-co-polyethylene glycol linker containing 2 to 100 alkylene glycol units,

iii) a group according to the structure:

$-CH_2CH_2(OCH_2CH_2)_mOCH_2-$, $-(CH_2)_mCH_2-$, or $-[N(R^a)-CH(R^b)(C=O)]_m-$,

wherein:

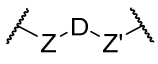
each occurrence of m is independently 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, or 15;

$R^a$ is independently H, $C_1$-$C_3$ alkyl, or $C_1$-$C_6$ alkanol, or

$R^b$ is independently selected from the group consisting of hydrogen, methyl, isopropyl, $-CH(CH_3)CH_2CH_3$, $-CH_2CH(CH_3)_2$, $-(CH_2)_3$-guanidine, $-CH_2C(=O)NH_2$, $-CH_2C(=O)OH$, $-CH_2SH$, $-(CH_2)_2C(=O)NH_2$, $-(CH_2)_2C(=O)OH$, $-(CH_2)$imidazole, $-(CH_2)_4NH_2$, $-CH_2CH_2SCH_3$, benzyl, $-CH_2OH$, $-CH(OH)CH_3$, and $-(CH_2)$phenol; or

$R^a$, together with nitrogen atom to which it is attached, combines with $R^b$ to form a pyrrolidine or hydroxypyrrolidine group;

iv) a group according to the formula:



,

wherein:

Z and Z’ are each independently a bond or -$(CH_2)_i$-O-;

D is a bond, -$(CH_2)_{m'}$-, or -[$(CH_2)_n$-$X^1$]$_j$-,

with the proviso that Z, Z', and D are not each simultaneously bonds;

each occurrence of $X^1$ is independently -O-, -S-, or -N(R)-;

each occurrence of R is independently H, $C_1$-$C_3$ alkyl, or $C_1$-$C_6$ alkanol;

each occurrence of i is independently 1, 2, 3, 4, 5, 6, 7, 8, 9, or 10;

each occurrence of j is independently 1, 2, 3, 4, 5, 6, 7, 8, 9, or 10;

each occurrence of m' is independently 1, 2, 3, 4, 5, 6, 7, 8, 9, or 10;

each occurrence of n is independently 1, 2, 3, 4, 5, 6, 7, 8, 9, or 10;

v) a group according to the structure:

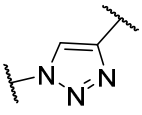
-$CH_2$-$(OCH_2CH_2)_n$-$CH_2$-, -$(CH_2CH_2O)_{n'}CH_2CH_2$-, or -$(CH_2CH_2CH_2O)_n$-,

wherein:

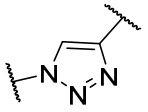
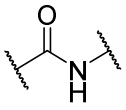
each occurrence of n is independently an integer from 1 to 25;

n' is an integer from 1 to 25;

vi) a group of formula: PEG-[CON]-PEG,

wherein each PEG is independently at each occurrence 1 to 12 ethylene glycol residues and [CON] is  ; and

vii) a group of formula: -Z-D-Z'-[CON]-Z-D-Z', wherein [CON] is

 or  ;

wherein:

each occurrence of Z and Z’ is independently a bond or -$(CH_2)_i$-O;

D is a bond, -$(CH_2)_{m'}$-, or -[$(CH_2)_n$-$X^1$]$_j$-;

$X^1$ is -O-;

with the proviso that Z, Z', and D are not each simultaneously bonds;

i is 2;

n is 2;

each occurrence of j is independently 1, 2, 3, 4, 5, 6, 7, 8, 9, or 10; and

each occurrence of m' is independently 1, 2, 3, 4, 5, 6, 7, 8, 9, or 10;

k' is 1, 2, or 3;

h is 0, 1, 2, 3, 4, 5, or 6;

i is 1, 2, 3, 4, 5, 6, 7, 8, 9, or 10;

h' is 0, 1, 2, 3, 4, 5, 6;

j' is 1, 2, or 3, provided that one of h and h' is at least 1.

2. The compound of claim 1, wherein the Linker comprises 2-12 ethylene glycol residues.

3. A pharmaceutical composition comprising at least one pharmaceutically acceptable excipient and at least one compound of claim 1.

4. The pharmaceutical composition of claim 3, further comprising another therapeutically active compound.

5. Use of the compound of claim 1 in the manufacture of a medicament for the treatment of a disease or disorder in a subject, wherein the disease or disorder is an autoimmune disease, cancer, or inflammation, and wherein a therapeutically effective amount of at least one compound of claim 1 is to be administered to the subject.

6. The use of claim 5, wherein the autoimmune disease is selected from the group consisting of Addison's Disease, Autoimmune polyendocrine syndrome (APS) types 1, 2 and 3, autoimmune pancreatitis (AIP), diabetes mellitus type 1, autoimmune thyroiditis, Ord's thyroiditis, Grave's disease, autoimmune oophoritis, endometriosis, autoimmune orchitis, Sjogren's syndrome, autoimmune enteropathy, celiac disease, Crohn's disease, microscopic colitis, ulcerative colitis, antiphospholipid syndrome (APS), aplastic anemia, autoimmune hemolytic anemia, autoimmune lymphoproliferative syndrome, autoimmune neutropenia, autoimmune thrombocytopenic purpura, cold agglutinin disease, essential mixed cryoglobulinemia, Evans syndrome, pernicious anemia, pure red cell aplasia, thrombocytopenia, adiposis dolorosa, adult-onset Still's disease, ankylosing spondylitis, CREST syndrome, drug-induced lupus, enthesitis-related arthritis, eosinophilic fasciitis, Felty syndrome, IgG4-related disease, juvenile arthritis, Lyme disease (chronic), mixed connective tissue disease (MCTD), palindromic rheumatism, Parry-Romberg syndrome, Parsonage-Turner syndrome, psoriatic arthritis, reactive arthritis, relapsing polychondritis, retroperitoneal fibrosis, rheumatic fever, rheumatoid arthritis, sarcoidosis, Schnitzler

syndrome, systemic lupus erythematosus, undifferentiated connective tissue disease (UCTD), dermatomyositis, fibromyalgia, myositis, inclusion body myositis, myasthenia gravis, neuromyotonia, paraneoplastic cerebellar degeneration, polymyositis, acute disseminated encephalomyelitis (ADEM), acute motor axonal neuropathy, anti-NMDA receptor encephalitis, Balo concentric sclerosis, Bickerstaff's encephalitis, chronic inflammatory demyelinating polyneuropathy, Guillain-Barré syndrome, Hashimoto's encephalopathy, idiopathic inflammatory demyelinating diseases, Lambert-Eaton myasthenic syndrome, multiple sclerosis, pattern II, Oshtoran Syndrome, Pediatric Autoimmune Neuropsychiatric Disorder Associated with Streptococcus (PANDAS), progressive inflammatory neuropathy, restless legs syndrome, stiff person syndrome, Sydenham chorea, transverse myelitis, autoimmune retinopathy, autoimmune uveitis, Cogan syndrome, Graves' ophthalmopathy, intermediate uveitis, ligneous conjunctivitis, Mooren's ulcer, neuromyelitis optica, opsoclonus myoclonus syndrome, optic neuritis, scleritis, Susac's syndrome, sympathetic ophthalmia, Tolosa-Hunt syndrome, autoimmune inner ear disease (AIED), Ménière's disease, Behçet's disease, Eosinophilic granulomatosis with polyangiitis (EGPA), giant cell arteritis, granulomatosis with polyangiitis (GPA), IgA vasculitis (IgAV), IgA nephropathy, Kawasaki disease, leukocytoclastic vasculitis, lupus vasculitis, rheumatoid vasculitis, microscopic polyangiitis (MPA), polyarteritis nodosa (PAN), polymyalgia rheumatica, urticarial vasculitis, vasculitis, and primary immune deficiency.

7. The use of claim 5, wherein the cancer is selected from the group consisting of prostate cancer, metastatic prostate cancer, stomach cancer, colon cancer, rectal cancer, liver cancer, pancreatic cancer, lung cancer, breast cancer, cervix uteri cancer, corpus uteri cancer, ovary cancer, testis cancer, bladder cancer, renal cancer, brain/CNS cancer, head and neck cancer, throat cancer, Hodgkin's disease, non-Hodgkin's lymphoma, multiple myeloma, leukemia, melanoma, non-melanoma skin cancer, acute lymphocytic leukemia, acute myelogenous leukemia, Ewing's sarcoma, small cell lung cancer, choriocarcinoma, rhabdomyosarcoma, Wilms' tumor, neuroblastoma, hairy cell leukemia, mouth/pharynx, oesophagus, larynx, kidney cancer, or lymphoma.

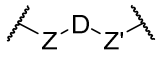
8. The use of claim 5, wherein the inflammation is selected from the group consisting of neurodegeneration, diseases of compromised immune response causing inflammation, chronic inflammatory diseases, hyperglycemic disorders, diabetes (I and II), pancreatic β-cell death and related hyperglycemic disorders, liver disease, renal disease, cardiovascular

disease, muscle degeneration and atrophy, low grade inflammation, gout, silicosis, atherosclerosis and associated conditions, stroke and spinal cord injury, chronic fatigue syndrome, complex regional pain syndrome, eosinophilic esophagitis, gastritis, interstitial lung disease, POEMS syndrome, pyoderma gangrenosum, and arteriosclerosis.

9. The use of claim 5, wherein the subject is a mammal.

10. The use of claim 5, wherein the subject is a human.

11. The compound of claim 1, wherein Linker is a group according to the formula:



wherein:

Z and Z’ are each independently a bond or $-(CH_2)_i-O-$;

D is a bond, $-(CH_2)_{m'}-$, or $-[(CH_2)_n-X^1]_j-$,

with the proviso that Z, Z', and D are not each simultaneously bonds, wherein:

each occurrence of $X^1$ is independently -O-, -S-, or -N(R)-;

each occurrence of R is independently H, $C_1$-$C_3$ alkyl, or $C_1$-$C_6$ alkanol;

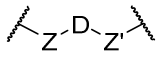
each occurrence of i is independently 1, 2, 3, 4, 5, 6, 7, 8, 9, or 10;

each occurrence of j is independently 1, 2, 3, 4, 5, 6, 7, 8, 9, or 10;

each occurrence of m' is independently 1, 2, 3, 4, 5, 6, 7, 8, 9, or 10; and

each occurrence of n is independently 1, 2, 3, 4, 5, 6, 7, 8, 9, or 10.

12. The compound of claim 1, wherein Linker is a group according to the formula:

,

wherein:

Z and Z’ are each independently a bond or $-(CH_2)_i-O$;

D is a bond, $-(CH_2)_{m'}-$, or $-[(CH_2)_n-X^1]_j-$;

with the proviso that Z, Z', and D are not each simultaneously bonds;

$X^1$ is -O-;

i is 2;

each occurrence of j is independently 1, 2, 3, 4, 5, 6, 7, 8, 9, or 10;

each occurrence of m' is independently 1, 2, 3, 4, 5, 6, 7, 8, 9, or 10; and

n is 2;

13. The compound of claim 1, wherein Ab is selected from the group consisting of atezolizumab, avelumab, bevacizumab, durvalumab, naxitamab, sacituzumab govitecan, and tisotumab vedotin.