Claims

1. A polypeptide comprising

   (i) a first amino acid sequence comprising at least one immunoglobulin single variable domain (ISV), which specifically binds to human IL-17F and to a heterodimer of human IL-17A and human IL-17F but does not specifically bind to human IL-17A; and

   (ii) a second amino acid sequence comprising at least one immunoglobulin single variable domain (ISV), which specifically binds to human IL-17A, to human IL-17F and to a heterodimer of human IL-17A and human IL-17F.

2. The polypeptide according to claim 1, wherein said specific binding is characterized by a rate of dissociation (k_{off} rate) between 10^{-4} s^{-1} and 10^{-6} s^{-1} as determined by surface plasmon resonance.

3. The polypeptide according to claim 1, wherein said specific binding occurs with a K_D of less than 1 nM, as determined by surface plasmon resonance.

4. The polypeptide according to any of claims 1-3, wherein said amino acid sequence comprises a light chain variable domain sequence, a heavy chain variable domain sequence and/or a single variable domain VHH.

5. The polypeptide according to any of claims 1-4, wherein the amino acid sequence comprises a polypeptide that has at least 80% amino acid identity with at least one of the amino acid sequences of SEQ ID NOs: 623 to 693, in which for the purposes of determining the degree of amino acid identity, the amino acid residues that form the CDR sequences are disregarded.

6. The polypeptide according to any of claims 1-5, wherein the polypeptide specifically binds to human IL-17 F, wherein the polypeptide binds to a R47A and/or a R73A and/or a I86A and/or a N89A IL-17F mutant with significantly reduced affinity as compared to binding to the wildtype IL-17F sequence.

7. The polypeptide according to any of claims 1-5, wherein the second amino acid sequence can specifically bind to human IL-17A, IL-17F and IL-17A/F, wherein the second amino acid sequence binds to a L74A, and/or a Y85A and/or a N88A IL-17A mutant with significantly reduced affinity as compared to binding to the wildtype IL-17A sequence.

8. The polypeptide according to any of claims 1-7, wherein the polypeptide comprises an amino acid sequence selected from any of SEQ ID NO: 623 to 693 and 826 to 838, wherein the amino acid sequence may comprise up to 6 single amino acid substitutions, deletions and/or insertions.

9. The polypeptide according to any of claims 1-7, wherein the polypeptide comprises an amino acid sequence selected from any of SEQ ID NO: 623 to 693 and 826 to 838, wherein the amino acid sequence may comprise up to 3 single amino acid substitutions, deletions and/or insertions.

10. The polypeptide according to claim 9, wherein the polypeptide comprises or consists of the amino acid sequence SEQ ID NO: 836.

11. The polypeptide according to any of claims 1-10, wherein the polypeptide comprises

(i) a first amino acid sequence selected from any of SEQ ID NO: 640-649, which specifically binds to human IL-17F and to a heterodimer of human IL-17A and human IL-17F, but does not specifically bind to human IL-17A; and

(ii) a second amino acid sequence selected from any of SEQ ID NO: 650-693, which specifically binds to human IL-17A, to human IL-17F and to a heterodimer of human IL-17A and human IL-17F;

wherein the first and second amino acid sequence may in total comprise up to 6 single amino acid substitutions, deletions and/or insertions.

12. Polypeptide according to any of claims 1 to 11 for use in the treatment of a disease.

13. Polypeptide according to any of claims 1 to 11 for use in the treatment of systemic lupus erythematosis, rheumatoid arthritis, osteoarthritis, juvenile chronic arthritis,

spondyloarthropathies, systemic sclerosis, idiopathic inflammatory myopathies, Sjögren's syndrome, systemic vasculitis, sarcoidosis, autoimmune hemolytic anemia, autoimmune thrombocytopenia, thyroiditis, diabetes mellitus, immune-mediated renal disease, demyelinating diseases of the central and peripheral nervous systems such as multiple sclerosis, idiopathic demyelinating polyneuropathy or Guillain-Barre syndrome, and chronic inflammatory demyelinating polyneuropathy, hepatobiliary diseases such as infectious, autoimmune chronic active hepatitis, primary biliary cirrhosis, granulomatous hepatitis, and sclerosing cholangitis, inflammatory bowel disease, gluten-sensitive enteropathy, and Whipple's disease, autoimmune or immune-mediated skin diseases including bullous skin diseases, erythema multiforme and contact dermatitis, psoriasis, allergic diseases such as asthma, allergic rhinitis, atopic dermatitis, food hypersensitivity and urticaria, immunologic diseases of the lung such as eosinophilic pneumonia, idiopathic pulmonary fibrosis and hypersensitivity pneumonitis, transplantation associated diseases including graft rejection and graft-versus-host-disease.

14. A pharmaceutical composition comprising a polypeptide according to any of claims 1 to 11 and a pharmaceutcially acceptable excipient for use in the treatment of systemic lupus erythematosis, rheumatoid arthritis, osteoarthritis, juvenile chronic arthritis, spondyloarthropathies, systemic sclerosis, idiopathic inflammatory myopathies, Sjögren's syndrome, systemic vasculitis, sarcoidosis, autoimmune hemolytic anemia, autoimmune thrombocytopenia, thyroiditis, diabetes mellitus, immune-mediated renal disease, demyelinating diseases of the central and peripheral nervous systems such as multiple sclerosis, idiopathic demyelinating polyneuropathy or Guillain-Barre syndrome, and chronic inflammatory demyelinating polyneuropathy, hepatobiliary diseases such as infectious, autoimmune chronic active hepatitis, primary biliary cirrhosis, granulomatous hepatitis, and sclerosing cholangitis, inflammatory bowel disease, gluten-sensitive enteropathy, and Whipple's disease, autoimmune or immune-mediated skin diseases including bullous skin diseases, erythema multiforme and contact dermatitis, psoriasis, allergic diseases such as asthma, allergic rhinitis, atopic dermatitis, food hypersensitivity and urticaria, immunologic diseases of the lung such as eosinophilic pneumonia, idiopathic pulmonary fibrosis and hypersensitivity pneumonitis, transplantation associated diseases including graft rejection and graft-versus-host-disease.

15. A pharmaceutical composition comprising a polypeptide according to any of claims 1 to 11 and a pharmaceutically acceptable excipient.

16. Polynucleotide encoding a polypeptide of any of claims 1-11.