

CLAIMS

1. A dipeptidyl peptidase 3 (DPP3) binder that binds to an epitope of an immunization peptide according to SEQ ID NO.: 2, and wherein said DPP3 binder recognizes and binds to at least three amino acids, particularly to at least four amino acids, more particularly to at least five amino acids of the immunization peptide of SEQ ID NO.: 2, wherein said epitope is comprised in SEQ ID NO.: 1, and wherein said DPP3 binder exhibits an affinity towards DPP3 such that the affinity constant is at least 10^{-7} M^{-1} ,
wherein said DPP3 binder is a monoclonal antibody or monoclonal antibody fragment, and wherein the complementarity determining regions (CDR's) in the heavy chain comprises the sequences:
SEQ ID NO.: 7, SEQ ID NO.: 8 and SEQ ID NO.: 9
and the complementarity determining regions (CDR's) in the light chain comprises the sequences:
SEQ ID NO.: 10, KVS and SEQ ID NO.: 11
2. The dipeptidyl peptidase 3 binder of claim 1, wherein said DPP3 binder binds to an epitope according to SEQ ID NO.: 3, and wherein said DPP3 binder recognizes and binds to at least three amino acids, particularly to at least four amino acids, more particularly to at least five amino acids of SEQ ID NO.: 3.
3. The dipeptidyl peptidase 3 binder of claim 1 or claim 2, wherein said DPP3 binder binds to an epitope according to SEQ ID NO.: 4, and wherein said DPP3 binder recognizes and binds to at least three amino acids, particularly to the four amino acids of SEQ ID NO.: 4.
4. The dipeptidyl peptidase 3 binder of any one of the claims 1 to 3, wherein said DPP3 binder is selected from a group comprising an antibody or antibody fragment or non-Ig scaffold.

5. The dipeptidyl peptidase 3 binder of any one of the claims 1 to 4, wherein said DPP3 binder is selected from a group comprising a monospecific antibody or a monospecific antibody fragment or a monospecific non-Ig scaffold.

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6. The dipeptidyl peptidase 3 binder of any one of the preceding claims, wherein said DPP3 binder is a humanized monoclonal antibody or humanized monoclonal antibody fragment, wherein the heavy chain comprises the sequence:

10 SEQ ID NO.: 12

and wherein the light chain comprises the sequence:

SEQ ID NO.: 13.

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7. Use of the dipeptidyl peptidase 3 binder according to any one of claims 1 to 6 in the manufacture of a medicament for the treatment of a disease or acute condition associated with oxidative stress, wherein said disease or acute condition is a neurodegenerative disease, metabolic syndrome, cardiovascular disorder, autoimmune disease, inflammatory lung disease, kidney disease, liver disease, digestive disease, viral infectious disease, cancer, inflammation, sepsis, septic shock or SIRS.

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8. The use according to claim 7 wherein said:

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- neurodegenerative disease is selected from Alzheimer's disease (AD), Parkinson's disease (PD), Huntington's disease (HD), amyotrophic lateral sclerosis (ALS) and multiple sclerosis (MS);
- metabolic syndrome is selected from insulin resistance, obesity, hyperglycemia, dyslipidemia, hypertension and diabetes;
- cardiovascular disorder is selected from atherosclerosis, hypertension, heart failure, cardiovascular ischemia, cerebral ischemic injury, stroke and myocardial infarction;

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- autoimmune disease is selected from rheumatoid arthritis, and systemic lupus erythematosus;
 - inflammatory lung disease is selected from COPD and asthma;
 - kidney disease is selected from acute kidney injury (AKI), chronic kidney disease (CKD), diabetic nephropathy, and end-stage renal disease (ESRD);
 - liver disease is selected from viral hepatitis, and cirrhosis;
 - digestive disease is selected from inflammatory bowel disease e.g. Ulcerative colitis, Crohn's disease, gastritis, pancreatitis and peptic ulcer;
 - viral infectious disease is selected from blood-borne hepatitis viruses (B, C, and D), human immunodeficiency virus (HIV), influenza A, Epstein-Barr virus, respiratory syncytial virus;
 - cancer is selected from prostate cancer, breast cancer, lung cancer, colorectal cancer, bladder cancer, ovarian cancer, skin cancer, stomach cancer, liver cancer.
9. The use according to claim 7 or 8 wherein said disease is selected from sepsis, septic shock, and SIRS.
10. The use according to any one of claims 7 to 9 wherein said disease is associated with oxidative stress in the myocardium.