

Supplementary Figure 1

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| Supplementary Table 1: Comparison of immune assays  |
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| β1-adr-R-Abs | **T1** | **LCR** | **CRP** |
| Membrane | r | -0.233 | -0.138 | -0.244 |
| *p* | 0.152 | 0.278 | 0.020 |
| Cyclopeptide | r | -0.362 | -0.249 | 0.115 |
| *p* | 0.023 | 0.049 | 0.278 |

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| Comparison of β1-adr-R-Antibodies measured via membrane or cyclopeptide essay and their associations with PVR, T1 relaxation time, LCR and CRP within the heart failure group; *T1* global T1-relaxation time; *LCR* leak control ratio; *CRP* c-reactive protein. β1-adr-R-Antibodies were normalized to total IgG and logarithmized log(x+1). Data given as Spearman rho. n=91. |

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| Supplementary Table 2: Histopathological classification |
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|  | **Myocarditis** | **NEP** | **DCM** | **Other CM** | **p** |
| Overall, n  | 30 | 29 | 25 | 11 |  |
| **Anthropometry** |  |  |  |  |  |
| Male, % | 24 | 23 | 15 | 8 | 0.244 |
| Age, y | 58.63 ± 10.38 | 53.52 ± 14.13 | 57.92 ± 12.59 | 57.64 ± 9.99 | 0.176 |
| **GPCR antibodies**, **Units/mg total IgG, log(x+1)** |
| α1-adr-R-Ab | 0.29 ± 0.09 | 0.35 ± 0.14 | 0.30 ± 0.14 | 0.35 ± 0.16 | 0.197 |
| β1-adr-R-Ab  | 0.14 ± 0.04 | 0.15 ± 0.07 | 0.14 ± 0.05 | 0.19 ± 0.11 | 0.712 |
| M5R-Ab | 0.30 ± 0.06 | 0.32 ± 0.12 | 0.29 ± 0.10 | 0.32 ± 0.12 | 0.581 |
| AT1R-Ab | 0.30 ± 0.09 | 0.34 ± 0.13 | 0.32 ± 0.14 | 0.35 ± 0.13  | 0.573 |
| AT2R-Ab | 0.40 ± 0.16 | 0.40 ± 0.19  | 0.39 ± 0.16 | 0.40 ± 0.16 | 0.964 |

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| Division of the heart failure group according to histopathological findings and subsequent comparison; GPCR-Abs normalized to total IgG and logarithmized. *NEP* no evidence of pathology; *DCM* dilated cardiomyopathy; *CM* cardiomyopathy. P calculated using ordinary one-way ANOVA. |

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| Supplementary Table 3: GPCR-Antibodies and cardiac parameters |
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|  | **RAP** | **PAP** | **PCWP** | **LVEDP** | **AOA** | **PVR** | **SVR** | **CI** |
| **a** |  |  |  |  |  |  |  |  |
| α1-adr-R-Ab | 0.047 | 0.067 | 0.048 | -0.089 | 0.046 | -0.240\* | -0.153 | 0.167 |
| β1-adr-R-Ab | 0.036 | 0.070 | -0.046 | -0.013 | 0.136 | -0.118 | -0.131 | 0.174 |
| M5R-Ab | 0.078 | 0.025 | 0.016 | -0.114 | 0.041 | -0.209 | -0.088 | 0.168 |
| AT1R-Ab | 0.088 | 0.040 | -0.004 | -0.027 | 0.069 | -0.281\* | -0.083 | 0.090 |
| AT2R-Ab | 0.083 | 0.109 | 0.093 | -0.080 | 0.050 | -0.178 | 0.025 | -0.036 |
| **b** |  |  |  |  |  |  |  |  |
| α1-adr-R-Ab | 0.133 | 0.067 | 0.117 | 0.048 | -0.039 | -0.146 | 0.021 | 0.091 |
| β1-adr-R-Ab  | 0.188 | 0.082 | 0.001 | 0.130 | 0.114 | -0.030 | 0.197 | 0.014 |
| M5R-Ab | 0.224\* | 0.036 | 0.080 | 0.053 | -0.009 | -0.114 | 0.221 | 0.042 |
| AT1R-Ab | 0.137 | 0.009 | 0.046 | 0.154 | -0.016 | -0.165 | 0.132 | -0.003 |
| AT2R-Ab | 0.188 | 0.117 | 0.133 | 0.062 | 0.096 | -0.137 | 0.216 | -0.101 |

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| Association of GPCR-Antibodies with hemodynamics and cardiac function in the heart failure group. **a** native data; **b** antibodies normalized to total IgG and logarithmized. *RAP* right atrial pressure; *PAP* pulmonary artery pressure; *PCWP* pulmonary capillary wedge pressure; *LVEDP* left ventricular end diastolic pressure; *AOA* aortic pressure; *SVR* systemic vascular resistance; *CI* cardiac index. Data given as Spearman rho with \*p ≤ 0.05. n=91-47. |

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| Supplementary Table 4: GPCR-Antibodies and cardiac MRI |
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|  | **T1** | **T2**  | **peak GLS** | **Diastolic SR** | **EF** |
| **a** |  |  |  |  |  |
| α1-adr-R-Ab | 0.045 | 0.058 | -0.199 | 0.102 | -0.089 |
| β1-adr-R-Ab (cyc.) | 0.118 | 0.035 | -0.363\* | 0.190 | 0.016 |
| M5R-Ab | 0.345\* | 0.024 | -0.080 | 0.069 | -0.054 |
| AT1R-Ab | -0.045 | -0.044 | -0.102 | -0.007 | -0.171 |
| AT2R-Ab | 0.079 | -0.182 | -0.048 | -0.002 | -0.110 |
| **b** |  |  |  |  |  |
| α1-adr-R-Ab | -0.278 | 0.065 | -0.156 | -0.059 | -0.027 |
| β1-adr-R-Ab (cyc.) | -0.362\* | -0.005 | -0.323\* | 0.029 | 0.095 |
| M5R-Ab | -0.132 | -0.015 | -0.086 | -0.042 | 0.036 |
| AT1R-Ab | -0.311 | 0.012 | -0.0004 | -0.183 | -0.092 |
| AT2R-Ab | -0.159 | -0.227 | -0.009 | -0.069 | -0.124 |

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| Association of GPCR-Antibodies with markers assessed in cardiac magnesonance imaging including peak global longitudinal strain (GLS), diastolic strain rate (SR), ejection fraction (EF, partially also attained from echocardiography), as well as global left ventricular T1 and T2 relaxation times within the heart failure group. **a** native data; **b** antibodies normalized to total IgG and logarithmized. Data given as Spearman rho with \*p ≤ 0.05. n=39-37 (89 for EF). |

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| Supplementary Table 5: GPCR-Antibodies and metabolic markers |
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|  | **FBG** | **Insulin** | **HOMA-IR** | **FFA** | **C-Pep** | **TAG** | **Chol** |
| **a** |  |  |  |  |  |  |  |
| α1-adr-R-Ab | -.013 | -.085 | -.081 | .100 | -0.073 | 0.109 | -0.063 |
| β1-adr-R-Ab | .058 | -.108 | -.077 | .112 | -0.029 | 0.145 | -0.073 |
| M5R-Ab | -.072 | -.160 | -.175 | -.040 | -0.142 | 0.113 | -0.080 |
| AT1R-Ab | -.060 | -.162 | -.169 | .259\* | -0.136\* | -0.099 | -0.218\* |
| AT2R-Ab | -.098 | -.206 | -.228\* | .118 | -0.137\* | -0.171 | -0.223\* |
| **b** |  |  |  |  |  |  |  |
| α1-adr-R-Ab | .072 | -.112 | -.094 | .083 | -0.032 | 0.058 | -0.076 |
| β1-adr-R-Ab | .113 | -.095 | -.044 | .176 | 0.068 | 0.019 | -0.137 |
| M5R-Ab | -.010 | -.184 | -.187 | -.005 | -0.070 | 0.019 | -0.105 |
| AT1R-Ab | .018 | -.178 | -.174 | .212\* | -0.084 | -0.123 | -0.187 |
| AT2R-Ab | -.081 | -.221\* | -.240\* | .154 | -0.106 | -0.242\* | -0.299\* |

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| Association of GPCR-Antibodies and markers of glycemia and insulin resistance in the heart failure group; **a** native data; **b** antibodies normalized to total IgG and logarithmized. *FBG* fasting blood glucose; *HOMA-IR* homeostasis model assessment – insulin resistance; *FFA* free fatty acids; *C-Pep* connecting peptide *TAG* triacylglycerol; *Chol* cholesterol. Insulin resistance was estimated by the homeostasis model (HOMA-IR) based on fasting insulin and glucose concentrations using the formula fasting insulin (mU/l) \* fasting glucose (mmol/l) / 22,5. Data given as Spearman rho with \*p ≤ 0.05. n=94-84. |

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| Supplementary Table 6: GPCR-Antibodies and mitochondrial parameters |
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|  | **OXPHOS** | **ETS** | **RCR** | **LCR** |
| **a** |  |  |  |  |
| α1-adr-R-Ab | 0.050 | -0.006 | 0.031 | -0.045 |
| β1-adr-R-Ab | 0.070 | 0.076 | 0.052 | -0.091 |
| M5R-Ab | 0.080 | 0.079 | 0.086 | -0.163 |
| AT1R-Ab | -0.003 | 0.034 | 0.031 | -0.116 |
| AT2R-Ab | -0.003 | 0.139 | 0.061 | -0.280\* |
| **b** |  |  |  |  |
| α1-adr-R-Ab | -0.039 | 0.012 | -0.007 | -0.100 |
| β1-adr-R-Ab (cyc.) | -0.030 | 0.098 | 0.075 | -0.249\* |
| M5R-Ab | -0.026 | 0.124 | 0.095 | -0.338\* |
| AT1R-Ab | -0.092 | 0.022 | -0.021 | -0.121 |
| AT2R-Ab | -0.067 | 0.133 | 0.105 | -0.352\* |

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| Association of GPCR-Antibodies and parameters of mitochondrial capacity in the heart failure group. **a** native data; **b** antibodies normalized to total IgG and logarithmized. *OXPHOS* oxidative phosphorylation capacity; *ETS* electron transfer system capacity; *RCR* respiratory control ratio; *LCR* leak control ratio. Data given as Spearman rho with \*p ≤ 0.05. n=67-63. |