Supplementary Table 1.Sequence of primers used for quantitative PCR experiments

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| --- | --- | --- |
| **Gene** | **Forward** | **Reverse** |
| *ACTA2a* | 5’- GGACCCTGTGAAGCACCAG-3’ | 5’- GTCACCCACGTAGCTGTCTT -3’ |
| *COL1A1* | 5’- GTCTGGTTTGGAGAGAGCAT -3’ | 5’- CTTCTTGAGGTTGCCAGTC -3’ |
| *KLF2b* | 5’- AGCCCACCGG-GTCTACACTA -3’ | 5’- CAAAATGCCACCTGTCTTCC -3’ |
| *SOD1* | 5’- TCCATGTCCATCAGTTTGGA -3’ | 5’- CTGCCCAAG TCATCTGGTTT -3’ |
|  |  |  |

aTaken from Roosens A, Puype I, Cornelissen R. Scaffold-free hogh throughput generation of quiescent valvular microtissues. J Mol Cell Cardiol 2017;106:45-54; bTaken from Zhang J, Burridge KA, Friedman MH. *In vivo* differences between endothelial transcriptional profiles of coronary and iliac arteries revealed by microarray analysis. Am J Physiol Heart Circ Physiol 2008;295:H1556-H1561.

Supplementary Table 2.Hepatic function enzymes of experimental animals measured at baseline and months4 and 7 of treatment with nasal vaccine HB-ATV-8

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| --- | --- | --- | --- | --- | --- |
|  |  | **CT** | **HF** | **HF +VACCINE** | ***p*** |
| ALT (mUI/mL) | t0 | 56.0±7.0 | 45.7±1.4 | 45.3±3.3 | 0.27 |
| t4 | 44.0±2.9 | 59.7±4.3 | 66.5±6.9 | 0.08 |
| t7 | 43.5±2.5 | 43.5±4.5 | 60.0±1.0 | 0.18 |
| AST (mUI/mL) | t0 | 49.2±12.8 | 31.5±2 | 37.5±3.5 | 0.32 |
| t4 | 29.0±8.0 | 43.3±9.7 | 35.5±6.2 | 0.38 |
| t7 | 22.5±1.5 | 44.8±21.8 | 26.5±0.5 | 0.36 |
| ALP (mUI/mL) | t0 | 573.7±58.8 | 571.0±23.8 | 516.8±34.9 | 0.19 |
| t4 | 421.3±47.2 | 324.3±29.4 | 345.2±47.7 | 0.28 |
| t7 | 320.0±56.0 | 329.5±30.5 | 231.0±11.0 | 0.18 |
| Total protein (g/dL) | t0 | 6.7±0.2 | 6.6±0.3 | 6.5±0.1 | 0.91 |
| t4 | 6.7±0.2 | 7.4±0.2 | 7.4±0.2 | 0.07 |
| t7 | 6.7±0.2 | 8.1±0.3 | 7.4±0.3 | 0.10 |

Represents mean  S.E.M. ALT; alanine aminotransferase. AST; aspartate transaminase. ALP; alkaline phosphate.

CT; control group fed a standard diet. HFD; group fed a high fat diet. HFD + Vaccine; group fed a high fat diet +nasal administration of vaccine.