

SUPPLEMENTARY MATERIAL FOR:

Confounding factors in multi-parametric q-MRI protocol: a study of bone marrow biomarkers at 1.5 T



Figure S1: Sagittal MR Images of the spine acquired with the DIXON sequence at $TE = 1.23$ ms and $FA = 15^\circ$, in a healthy volunteer. The selected ROIs are represented with green, cyan and orange ovals respectively for the whole, anterior and posterior regions of the vertebrae.

| | Whole | | Anterior | | p-value | |
|---|----------------|----------------|----------------|----------------|-----------------------------|------------------------------|
| | R ₁ | R ₂ | R ₁ | R ₂ | R ₁ | R ₂ |
| PDFF (%) | 33 ± 10 | 33 ± 9 | 30 ± 10 | 30 ± 8 | 7,8 10⁻⁷* | 1,5 10⁻⁷* |
| f (%) | 18 ± 11 | 18 ± 10 | 14 ± 9 | 16 ± 10 | 2,8 10⁻⁷* | 0,09 |
| f_{PDFF} (%) | 12 ± 7 | 12 ± 6 | 10 ± 6 | 11 ± 6 | 1,4 10⁻⁵* | 0,14 |
| T_{1W} (ms) | 748 ± 194 | 746 ± 183 | 780 ± 190 | 785 ± 176 | 5,9 10⁻⁵* | 1,9 10⁻⁶* |
| T_{1F} (ms) | 324 ± 92 | 332 ± 83 | 295 ± 92 | 308 ± 87 | 1,4 10⁻⁴* | 1,6 10⁻⁴* |
| T_{2*W} (ms) | 12 ± 4 | 12 ± 4 | 13 ± 4 | 13 ± 4 | 2,3 10⁻⁶* | 8,6 10⁻¹⁰* |
| T_{2*F} (ms) | 12 ± 6 | 11 ± 5 | 13 ± 20 | 10 ± 5 | 1 | 1 |
| D (×10⁻³ mm²/s) | 0.39 ± 0.12 | 0.45 ± 0.18 | 0.39 ± 0.12 | 0.44 ± 0.26 | 0,17 | 0,06 |
| D* (×10⁻³ mm²/s) | 17 ± 7 | 20 ± 9 | 18 ± 12 | 18 ± 10 | 0,50 | 0,09 |

Table S1: Numerical values of VBMBs, expressed as mean ± standard deviation, for whole and anterior regions for the first and the second repetition (R1, R2 respectively). The p-value from the paired signed rank Wilcoxon test is given for each parameter. Bold, : p-value < 0.01.*

| | Whole | | Posterior | | p-value | |
|---|----------------|----------------|----------------|----------------|-----------------------------|-----------------------------|
| | R ₁ | R ₂ | R ₁ | R ₂ | R ₁ | R ₂ |
| PDFF (%) | 33 ± 10 | 33 ± 9 | 34 ± 10 | 34 ± 10 | 3,6 10^{-3*} | 0,02 |
| f (%) | 18 ± 11 | 18 ± 10 | 22 ± 12 | 21 ± 10 | 5,5 10^{-6*} | 6,1 10^{-4*} |
| f_{PDFF} (%) | 12 ± 7 | 12 ± 6 | 14 ± 7 | 13 ± 6 | 9,0 10^{-6*} | 1,5 10^{-3*} |
| T_{1W} (ms) | 748 ± 194 | 746 ± 183 | 768 ± 189 | 761 ± 189 | 0,07 | 0,13 |
| T_{1F} (ms) | 324 ± 92 | 332 ± 83 | 336 ± 99 | 338 ± 86 | 9,8 10^{-3*} | 0,10 |
| T_{2*_W} (ms) | 12 ± 4 | 12 ± 4 | 12 ± 5 | 12 ± 4 | 0,72 | 0,04 |
| T_{2*_F} (ms) | 12 ± 6 | 11 ± 5 | 11 ± 7 | 12 ± 7 | 0,32 | 0,17 |
| D (×10⁻³ mm²/s) | 0.39 ± 0.12 | 0.45 ± 0.18 | 0.42 ± 0.12 | 0.49 ± 0.20 | 3,0 10^{-3*} | 3,9 10^{-5*} |
| D* (×10⁻³ mm²/s) | 17 ± 7 | 20 ± 9 | 23 ± 15 | 26 ± 17 | 4,4 10^{-5*} | 1,7 10^{-4*} |

*Table S2: Numerical values of VBMBs, expressed as mean ± standard deviation, for whole and posterior regions for the first and the second repetition (R1, R2 respectively). The p-value from the paired signed rank Wilcoxon test is given for each parameter. Bold, *: p-value < 0.01.*