

**Supplementary Information**

**Sizes, intensity and contraction rate**

**Table S1.** Complete list of initial and minimum size, corrected intensity and maximum contraction strain rate (for contraction,  $d\epsilon/dt < 0$ ) for all the analyzed tests.

| Myosin type | poly-L-lys concentr. | Test nr | Cell nr | Initial size (μm) | Minimum size (μm) | Corrected intensity (a.u.) | Max. contr. strain rate (s <sup>-1</sup> ) |
|-------------|----------------------|---------|---------|-------------------|-------------------|----------------------------|--------------------------------------------|
| Wt          | 1%                   | 22      | 2       | 10.66             | 4.62              | 29.9                       | -8.17E-02                                  |
| Wt          | 1%                   | 22      | 3       | 10.64             | 5.57              | 91.3                       | -5.94E-02                                  |
| Wt          | 1%                   | 22      | 4       | 8.50              | 4.40              | 45.5                       | -9.16E-02                                  |
| wt          | 1%                   | 22      | 7       | 8.17              | 4.10              | 70.6                       | -5.64E-02                                  |
| wt          | 1%                   | 22      | 8       | 9.11              | 4.06              | 39.5                       | -8.96E-02                                  |
| wt          | 1%                   | 22      | 10      | 7.86              | 3.13              | 18.5                       | -9.72E-02                                  |
| wt          | 1%                   | 22      | 11      | 8.07              | 4.31              | 53.7                       | -4.14E-02                                  |
| wt          | 1%                   | 22      | 12      | 8.78              | 4.22              | 21.1                       |                                            |
| wt          | 1%                   | 34      | 1       | 7.80              | 4.11              | 921.9                      | -3.37E-02                                  |
| wt          | 1%                   | 34      | 2       | 10.62             | 5.15              | 764.5                      | -2.86E-02                                  |
| wt          | 1%                   | 34      | 3       | 10.21             | 4.93              | 790.3                      | -4.67E-02                                  |
| wt          | 1%                   | 34      | 4       | 10.43             | 5.31              | 362.3                      | -3.41E-02                                  |
| wt          | 1%                   | 34      | 5       | 9.09              | 4.46              | 766.1                      | -2.23E-02                                  |
| wt          | 1%                   | 34      | 6       | 11.77             | 5.77              | 807.1                      | -3.43E-02                                  |
| wt          | 1%                   | 34      | 7       | 9.10              | 4.40              | 930.7                      | -3.23E-02                                  |
| wt          | 1%                   | 34      | 8       |                   |                   | 892.1                      |                                            |
| wt          | 1%                   | 34      | 9       | 9.81              | 5.57              | 1079.2                     | -2.81E-02                                  |
| wt          | 1%                   | 34      | 10      | 11.36             | 6.83              | 1525.4                     | -1.75E-02                                  |
| wt          | 1%                   | 34      | 11      | 9.28              | 4.47              | 807.6                      | -3.70E-02                                  |
| wt          | 1%                   | 34      | 12      | 8.08              | 4.03              | 373.8                      | -3.60E-02                                  |
| wt          | 1%                   | 34      | 13      | 8.02              | 4.11              | 390.9                      | -3.79E-02                                  |
| wt          | 1%                   | 34      | 14      | 8.25              | 4.00              | 724.2                      | -2.87E-02                                  |
| wt          | 1%                   | 34      | 15      | 10.28             | 5.28              | 762.6                      | -2.49E-02                                  |
| wt          | 1%                   | 34      | 16      | 7.86              | 4.43              | 504.0                      | -3.06E-02                                  |
| wt          | 1%                   | 34      | 17      | 8.01              | 3.92              | 743.7                      | -3.26E-02                                  |
| wt          | 1%                   | 34      | 18      | 9.78              | 4.73              | 766.3                      | -3.90E-02                                  |
| wt          | 1%                   | 34      | 19      | 8.08              | 3.71              | 847.9                      | -3.89E-02                                  |
| wt          | 1%                   | 34      | 20      | 8.78              | 4.16              | 427.2                      | -4.59E-02                                  |
| wt          | 1%                   | 34      | 21      | 10.14             | 5.08              | 734.5                      | -3.53E-02                                  |
| wt          | 1%                   | 34      | 22      | 9.57              | 5.01              | 401.0                      | -4.48E-02                                  |
| wt          | 10%                  | 31      | 1       | 9.07              | 5.38              | 222.4                      | -5.33E-03                                  |
| wt          | 10%                  | 31      | 2       | 9.56              | 5.89              | 475.5                      | -4.53E-03                                  |

| Myosin type | poly-L-lys concentr. | Test nr | Cell nr | Initial size (μm) | Minimum size (μm) | Corrected intensity (a.u.) | Max. contr. strain rate (s <sup>-1</sup> ) |
|-------------|----------------------|---------|---------|-------------------|-------------------|----------------------------|--------------------------------------------|
| wt          | 10%                  | 31      | 3       | 9.40              | 5.98              | 280.4                      | -6.56E-03                                  |
| wt          | 10%                  | 31      | 4       | 8.45              | 5.33              | 327.3                      | -5.79E-03                                  |
| wt          | 10%                  | 31      | 5       | 7.67              | 5.18              | 73.4                       | -9.04E-03                                  |
| wt          | 10%                  | 31      | 6       |                   |                   | 45.7                       | -6.17E-03                                  |
| wt          | 10%                  | 31      | 7       |                   |                   |                            | -4.29E-03                                  |
| wt          | 10%                  | 31      | 8       | 8.93              | 4.00              | 232.4                      | -9.27E-03                                  |
| wt          | 10%                  | 31      | 9       | 7.66              | 5.03              | 176.1                      | -8.32E-03                                  |
| wt          | 10%                  | 31      | 10      | 9.01              | 5.30              | 76.7                       | -1.06E-02                                  |
| wt          | 10%                  | 31      | 11      | 8.28              | 4.72              | 19.5                       | -8.43E-03                                  |
| wt          | 10%                  | 31      | 12      | 8.32              | 4.37              | 35.0                       |                                            |
| ΔR          | 1%                   | 29      | 1       |                   |                   | 448.6                      |                                            |
| ΔR          | 1%                   | 29      | 2       |                   |                   | 361.5                      |                                            |
| ΔR          | 1%                   | 29      | 3       | 18.11             | 6.95              | 675.1                      | -4.66E-03                                  |
| ΔR          | 1%                   | 29      | 4       |                   |                   | 619.7                      |                                            |
| ΔR          | 1%                   | 29      | 5       | 14.24             | 6.39              | 1091.4                     | -5.88E-03                                  |
| ΔR          | 1%                   | 29      | 6       | 18.45             | 5.20              | 653.3                      |                                            |
| ΔR          | 1%                   | 29      | 7       | 18.31             | 4.76              | 588.5                      |                                            |
| ΔR          | 1%                   | 29      | 8       | 13.35             | 5.02              | 357.0                      | -7.47E-03                                  |
| ΔR          | 1%                   | 29      | 9       | 14.20             | 8.11              | 566.7                      |                                            |
| ΔR          | 1%                   | 29      | 10      | 14.34             | 6.98              | 330.8                      | -1.92E-03                                  |
| ΔR          | 1%                   | 29      | 11      | 16.08             | 6.99              | 1033.1                     | -2.97E-03                                  |
| ΔR          | 1%                   | 29      | 12      | 14.33             | 7.12              | 930.5                      | -2.28E-03                                  |
| ΔR          | 1%                   | 29      | 13      | 17.40             | 6.80              | 384.7                      | -4.70E-03                                  |
| ΔR          | 1%                   | 29      | 14      | 19.76             | 5.02              | 482.1                      |                                            |
| ΔR          | 1%                   | 29      | 15      | 14.76             | 7.85              | 625.3                      | -1.76E-03                                  |
| ΔR          | 1%                   | 35      | 1       | 10.33             | 5.99              | 498.0                      | -7.60E-03                                  |
| ΔR          | 1%                   | 35      | 2       | 8.56              | 5.24              | 936.6                      | -4.34E-03                                  |
| ΔR          | 1%                   | 35      | 3       | 9.41              | 5.81              | 692.9                      | -1.33E-02                                  |
| ΔR          | 1%                   | 35      | 4       | 9.73              | 6.59              | 723.4                      | -4.93E-03                                  |
| ΔR          | 1%                   | 35      | 5       | 8.37              | 5.67              | 640.9                      | -4.28E-03                                  |
| ΔR          | 1%                   | 35      | 6       | 9.57              | 7.32              | 1114.4                     | -4.83E-03                                  |
| ΔR          | 1%                   | 35      | 7       |                   |                   | 503.6                      |                                            |
| ΔR          | 1%                   | 35      | 8       |                   |                   | 1388.1                     |                                            |
| ΔR          | 1%                   | 35      | 9       |                   |                   | 1006.6                     |                                            |
| ΔR          | 1%                   | 35      | 10      |                   |                   | 726.4                      |                                            |
| ΔR          | 1%                   | 35      | 11      |                   |                   | 486.4                      |                                            |
| ΔR          | 1%                   | 35      | 12      |                   |                   | 857.9                      |                                            |
| ΔR          | 1%                   | 35      | 13      |                   |                   | 599.0                      |                                            |
| ΔR          | 1%                   | 35      | 14      |                   |                   | 900.7                      |                                            |
| ΔR          | 1%                   | 35      | 15      |                   |                   | 935.3                      |                                            |
| ΔR          | 1%                   | 35      | 16      |                   |                   | 528.0                      |                                            |
| ΔR          | 1%                   | 35      | 17      |                   |                   | 1064.2                     |                                            |
| ΔR          | 1%                   | 35      | 18      |                   |                   | 980.4                      |                                            |

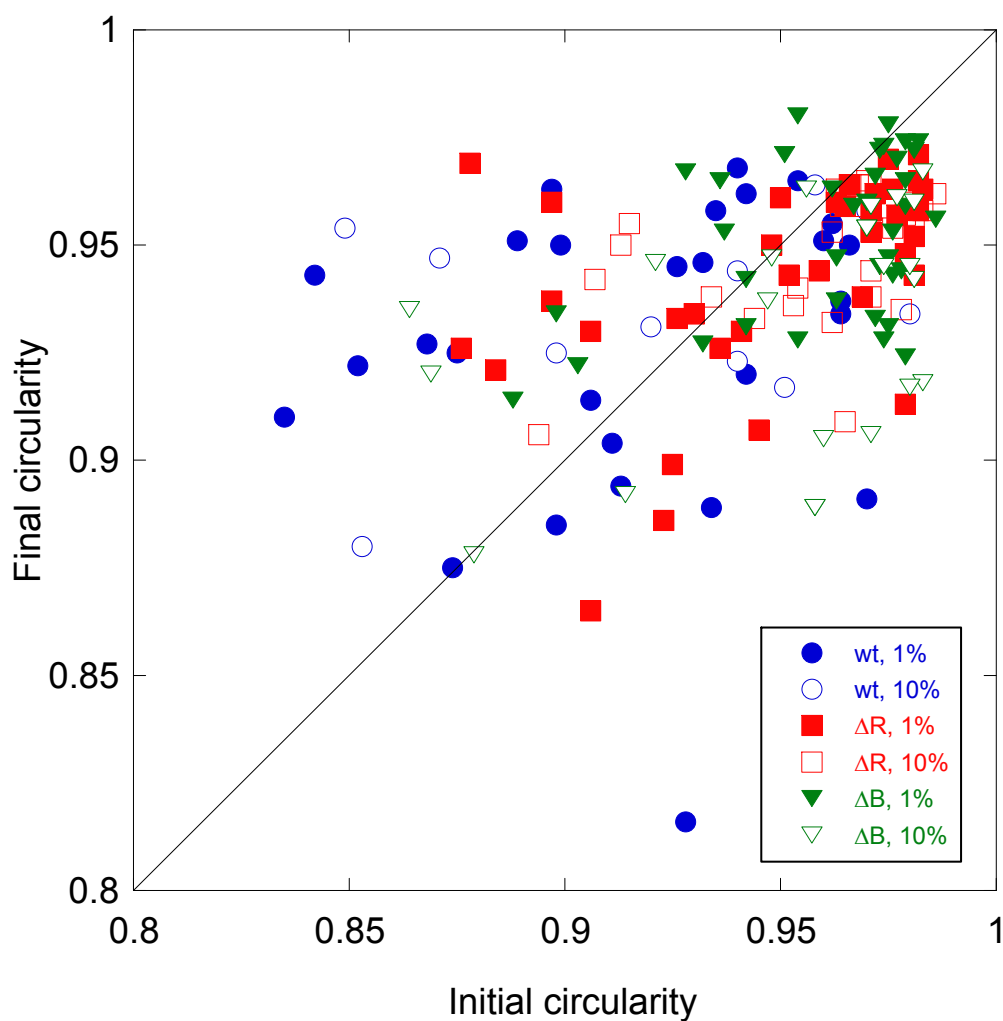
| Myosin type | poly-L-lys concentr. | Test nr | Cell nr | Initial size (μm) | Minimum size (μm) | Corrected intensity (a.u.) | Max. contr. strain rate (s <sup>-1</sup> ) |
|-------------|----------------------|---------|---------|-------------------|-------------------|----------------------------|--------------------------------------------|
| ΔR          | 1%                   | 35      | 19      |                   |                   | 898.9                      |                                            |
| ΔR          | 1%                   | 35      | 20      |                   |                   | 709.8                      |                                            |
| ΔR          | 1%                   | 35      | 21      |                   |                   |                            |                                            |
| ΔR          | 10%                  | 26      | 1       | 18.58             | 8.19              | 558.7                      | -1.32E-02                                  |
| ΔR          | 10%                  | 26      | 2       | 18.14             | 6.95              | 469.5                      | 0.00E+00                                   |
| ΔR          | 10%                  | 26      | 3       |                   |                   | 636.6                      |                                            |
| ΔR          | 10%                  | 26      | 4       | 15.95             | 5.26              | 567.5                      | -2.97E-03                                  |
| ΔR          | 10%                  | 26      | 5       |                   |                   | 266.1                      |                                            |
| ΔR          | 10%                  | 26      | 6       |                   |                   | 243.9                      | -2.46E-03                                  |
| ΔR          | 10%                  | 26      | 7       |                   |                   | 529.5                      |                                            |
| ΔR          | 10%                  | 26      | 8       |                   |                   | 572.3                      |                                            |
| ΔR          | 10%                  | 26      | 9       |                   |                   | 568.3                      |                                            |
| ΔR          | 10%                  | 26      | 10      |                   |                   | 552.5                      |                                            |
| ΔR          | 10%                  | 26      | 11      |                   |                   | 488.8                      |                                            |
| ΔR          | 10%                  | 26      | 12      |                   |                   | 468.8                      |                                            |
| ΔR          | 10%                  | 26      | 13      |                   |                   | 572.6                      |                                            |
| ΔR          | 10%                  | 26      | 14      |                   |                   | 462.8                      |                                            |
| ΔR          | 10%                  | 32      | 1       |                   |                   | 1915.3                     |                                            |
| ΔR          | 10%                  | 32      | 2       | 9.27              | 5.46              | 860.4                      | -2.93E-03                                  |
| ΔR          | 10%                  | 32      | 3       | 9.03              | 5.48              | 688.3                      | -1.40E-03                                  |
| ΔR          | 10%                  | 32      | 4       | 8.44              | 4.18              | 1055.8                     | -2.36E-03                                  |
| ΔR          | 10%                  | 32      | 5       |                   |                   | 732.1                      |                                            |
| ΔR          | 10%                  | 32      | 6       | 10.64             | 7.05              | 286.0                      | -1.84E-03                                  |
| ΔR          | 10%                  | 32      | 7       |                   |                   | 767.2                      |                                            |
| ΔR          | 10%                  | 32      | 8       | 8.61              | 5.44              | 352.6                      | -1.52E-03                                  |
| ΔR          | 10%                  | 32      | 9       |                   |                   | 753.0                      |                                            |
| ΔR          | 10%                  | 32      | 10      |                   |                   | 837.5                      |                                            |
| ΔR          | 10%                  | 32      | 11      |                   |                   | 544.1                      |                                            |
| ΔR          | 10%                  | 32      | 12      |                   |                   | 528.7                      |                                            |
| ΔR          | 10%                  | 32      | 13      |                   |                   | 1146.2                     |                                            |
| ΔR          | 10%                  | 32      | 14      |                   |                   | 856.2                      |                                            |
| ΔR          | 10%                  | 32      | 15      |                   |                   | 775.5                      |                                            |
| ΔR          | 10%                  | 32      | 16      |                   |                   | 775.2                      |                                            |
| ΔR          | 10%                  | 32      | 17      |                   |                   | 1982.6                     |                                            |
| ΔR          | 10%                  | 32      | 18      |                   |                   | 580.9                      |                                            |
| ΔR          | 10%                  | 32      | 19      |                   |                   | 589.5                      |                                            |
| ΔR          | 10%                  | 32      | 20      |                   |                   | 716.0                      |                                            |
| ΔR          | 10%                  | 32      | 21      |                   |                   | 1015.1                     |                                            |
| ΔR          | 10%                  | 32      | 22      |                   |                   | 707.7                      |                                            |
| ΔB          | 1%                   | 23      | 1       | 8.77              |                   | 1595.1                     | -8.00E-03                                  |
| ΔB          | 1%                   | 23      | 2       | 8.92              |                   | 413.4                      | -7.20E-04                                  |
| ΔB          | 1%                   | 23      | 3       | 8.60              |                   | 2102.6                     | -1.70E-03                                  |
| ΔB          | 1%                   | 23      | 4       | 8.48              |                   | 1160.7                     |                                            |

| Myosin type | poly-L-lys concentr. | Test nr | Cell nr | Initial size (μm) | Minimum size (μm) | Corrected intensity (a.u.) | Max. contr. strain rate (s <sup>-1</sup> ) |
|-------------|----------------------|---------|---------|-------------------|-------------------|----------------------------|--------------------------------------------|
| ΔB          | 1%                   | 23      | 5       | 9.07              |                   | 967.6                      | -3.60E-03                                  |
| ΔB          | 1%                   | 23      | 6       | 9.50              |                   | 841.8                      |                                            |
| ΔB          | 1%                   | 23      | 7       | 10.37             |                   | 603.0                      |                                            |
| ΔB          | 1%                   | 23      | 8       | 8.99              |                   | 1816.1                     | -1.89E-03                                  |
| ΔB          | 1%                   | 23      | 9       | 11.39             |                   | 604.0                      |                                            |
| ΔB          | 1%                   | 23      | 10      | 9.37              |                   | 792.2                      | -2.56E-03                                  |
| ΔB          | 1%                   | 23      | 11      | 8.65              |                   | 578.5                      | -1.68E-03                                  |
| ΔB          | 1%                   | 23      | 12      | 9.32              |                   | 890.9                      |                                            |
| ΔB          | 1%                   | 23      | 13      | 7.14              |                   | 1702.5                     |                                            |
| ΔB          | 1%                   | 23      | 14      | 10.62             |                   | 278.4                      |                                            |
| ΔB          | 1%                   | 23      | 15      | 9.29              |                   | 3037.2                     |                                            |
| ΔB          | 1%                   | 23      | 16      | 10.64             |                   | 1366.5                     |                                            |
| ΔB          | 1%                   | 23      | 17      | 6.41              |                   | 1354.7                     |                                            |
| ΔB          | 1%                   | 23      | 18      | 8.85              |                   | 2603.0                     |                                            |
| ΔB          | 1%                   | 23      | 19      | 9.97              |                   | 655.0                      |                                            |
| ΔB          | 1%                   | 23      | 20      | 8.28              |                   | 860.0                      |                                            |
| ΔB          | 1%                   | 23      | 21      | 8.04              |                   | 461.6                      |                                            |
| ΔB          | 1%                   | 23      | 22      | 9.75              |                   | 332.9                      |                                            |
| ΔB          | 1%                   | 23      | 23      | 8.51              |                   | 504.9                      |                                            |
| ΔB          | 1%                   | 23      | 24      | 7.47              |                   | 265.2                      |                                            |
| ΔB          | 1%                   | 23      | 25      | 7.84              |                   | 1457.5                     |                                            |
| ΔB          | 1%                   | 30      | 1       | 8.45              | 5.19              | 1555.6                     |                                            |
| ΔB          | 1%                   | 30      | 2       | 10.79             | 5.86              | 795.2                      | -1.46E-03                                  |
| ΔB          | 1%                   | 30      | 3       | 9.46              | 6.40              | 553.6                      | -1.87E-03                                  |
| ΔB          | 1%                   | 30      | 4       | 8.74              | 5.56              | 1666.5                     | -2.18E-03                                  |
| ΔB          | 1%                   | 30      | 5       | 7.24              | 4.50              | 1534.2                     |                                            |
| ΔB          | 1%                   | 30      | 6       | 11.40             | 5.99              | 709.3                      | -2.22E-03                                  |
| ΔB          | 1%                   | 30      | 7       | 8.00              | 4.67              | 901.5                      | -2.21E-03                                  |
| ΔB          | 1%                   | 30      | 8       | 8.71              | 5.07              | 1242.1                     |                                            |
| ΔB          | 1%                   | 30      | 9       | 6.53              | 3.97              | 969.5                      | -3.80E-03                                  |
| ΔB          | 1%                   | 30      | 10      | 6.85              | 4.21              | 919.8                      |                                            |
| ΔB          | 1%                   | 30      | 11      | 9.61              | 3.75              | 1705.3                     |                                            |
| ΔB          | 1%                   | 30      | 12      | 7.77              | 4.62              | 720.5                      | -2.59E-03                                  |
| ΔB          | 10%                  | 27      | 1       | 9.39              | 5.00              | 936.7                      | -3.40E-03                                  |
| ΔB          | 10%                  | 27      | 2       |                   |                   | 504.9                      | -2.80E-03                                  |
| ΔB          | 10%                  | 27      | 3       | 7.67              | 4.91              | 549.9                      | -3.36E-03                                  |
| ΔB          | 10%                  | 27      | 4       | 7.31              | 5.93              | 295.3                      | -4.27E-03                                  |
| ΔB          | 10%                  | 27      | 5       | 7.41              | 3.20              | 1630.0                     | -1.07E-02                                  |
| ΔB          | 10%                  | 27      | 6       | 8.34              | 4.20              | 1206.6                     | -1.36E-03                                  |
| ΔB          | 10%                  | 27      | 7       | 8.65              | 5.57              | 1008.7                     | -5.13E-03                                  |
| ΔB          | 10%                  | 27      | 8       | 7.97              | 3.46              | 3169.8                     | -2.58E-03                                  |
| ΔB          | 10%                  | 27      | 9       |                   |                   | 1798.9                     | -1.90E-03                                  |
| ΔB          | 10%                  | 27      | 10      | 8.62              | 5.43              | 1381.7                     |                                            |

| Myosin type | poly-L-lys concentr. | Test nr | Cell nr | Initial size (μm) | Minimum size (μm) | Corrected intensity (a.u.) | Max. contr. strain rate (s <sup>-1</sup> ) |
|-------------|----------------------|---------|---------|-------------------|-------------------|----------------------------|--------------------------------------------|
| ΔB          | 10%                  | 27      | 11      |                   |                   | 2327.6                     | -2.86E-03                                  |
| ΔB          | 10%                  | 27      | 12      | 10.13             | 7.39              | 1699.1                     | -2.86E-03                                  |
| ΔB          | 10%                  | 27      | 13      | 9.09              | 6.81              | 1199.2                     | -3.19E-03                                  |
| ΔB          | 10%                  | 33      | 1       | 19.70             | 7.96              | 1310.9                     | -1.81E-02                                  |
| ΔB          | 10%                  | 33      | 2       | 14.13             | 6.62              | 3375.9                     |                                            |
| ΔB          | 10%                  | 33      | 3       |                   |                   | 1385.9                     |                                            |
| ΔB          | 10%                  | 33      | 4       | 16.25             | 7.20              | 151.7                      | -1.53E-02                                  |
| ΔB          | 10%                  | 33      | 5       | 17.48             | 6.45              | 161.6                      | -7.69E-03                                  |
| ΔB          | 10%                  | 33      | 6       | 14.74             | 6.43              | 2339.5                     | -5.27E-03                                  |
| ΔB          | 10%                  | 33      | 7       | 15.99             | 6.05              | 2794.1                     | -6.62E-03                                  |
| ΔB          | 10%                  | 33      | 8       | 10.43             | 4.69              | 1905.4                     |                                            |
| ΔB          | 10%                  | 33      | 9       | 19.22             | 5.99              | 1091.1                     | -6.74E-03                                  |
| ΔB          | 10%                  | 33      | 10      | 16.38             | 6.81              | 565.1                      | -4.29E-03                                  |
| ΔB          | 10%                  | 33      | 11      | 14.34             | 5.05              | 948.9                      | -1.27E-02                                  |
| ΔB          | 10%                  | 33      | 12      | 18.94             | 6.06              | 620.7                      | -1.04E-02                                  |
| ΔB          | 10%                  | 33      | 13      | 13.83             | 5.66              | 833.0                      | -1.05E-02                                  |
| ΔB          | 10%                  | 33      | 14      | 16.86             | 4.24              | 2129.2                     | -7.49E-03                                  |

### Circularity

**Figure S1.** Final (in the contracted state) circularity vs. initial circularity of the cytoskeletons. The values for the three types of myosin, and the two types of substrates, are shown. The circularity is calculated as  $4\pi(\text{area}/\text{perimeter}^2)$ . It is equal to 1 for a perfect circle.



**Contraction rates**

**Table S2.** Mean values of the maximum strain rates during contraction. The values are calculated from Table S1.

A) For all the analyzed cytoskeletons

| Myosin type | Substrate: poly-L-lys concentr. | Max. contr. strain rate -dε/dt (s <sup>-1</sup> ) |    |        |
|-------------|---------------------------------|---------------------------------------------------|----|--------|
|             |                                 | Mean                                              | N  | 95% CI |
| Wt          | 0.01                            | 0.0438                                            | 28 | 0.0079 |
| ΔR          | 0.01                            | 0.0051                                            | 14 | 0.0016 |
| ΔB          | 0.01                            | 0.0026                                            | 14 | 0.0009 |
| Wt          | 0.1                             | 0.0071                                            | 11 | 0.0012 |
| ΔR          | 0.1                             | 0.0032                                            | 9  | 0.0025 |
| ΔB          | 0.1                             | 0.0065                                            | 23 | 0.0018 |

B) For cytoskeletons with an initial size L<12.5μm

| Myosin type | Substrate: poly-L-lys concentr. | Max. contr. strain rate -dε/dt (s <sup>-1</sup> ) |    |        |
|-------------|---------------------------------|---------------------------------------------------|----|--------|
|             |                                 | Mean                                              | N  | 95% CI |
| Wt          | 0.01                            | 0.0438                                            | 28 | 0.0079 |
| ΔR          | 0.01                            | 0.0065                                            | 6  | 0.0024 |
| ΔB          | 0.01                            | 0.0026                                            | 14 | 0.0009 |
| Wt          | 0.1                             | 0.0071                                            | 11 | 0.0012 |
| ΔR          | 0.1                             | 0.0020                                            | 5  | 0.0006 |
| ΔB          | 0.1                             | 0.0041                                            | 9  | 0.0018 |

**Typical estimated contraction times**

From the mean values of the maximum contraction strain rates (Table S.2A), we have estimated the time required for a cytoskeleton, at that rate, to contract to 50% of its initial length. The time is calculated with the following equation:

$$t_{50\%} = \epsilon_{50\%} / (-d\epsilon/dt) = \ln(0.5L_0 / L_0) / (-d\epsilon/dt) = \ln(2) / (d\epsilon/dt)$$

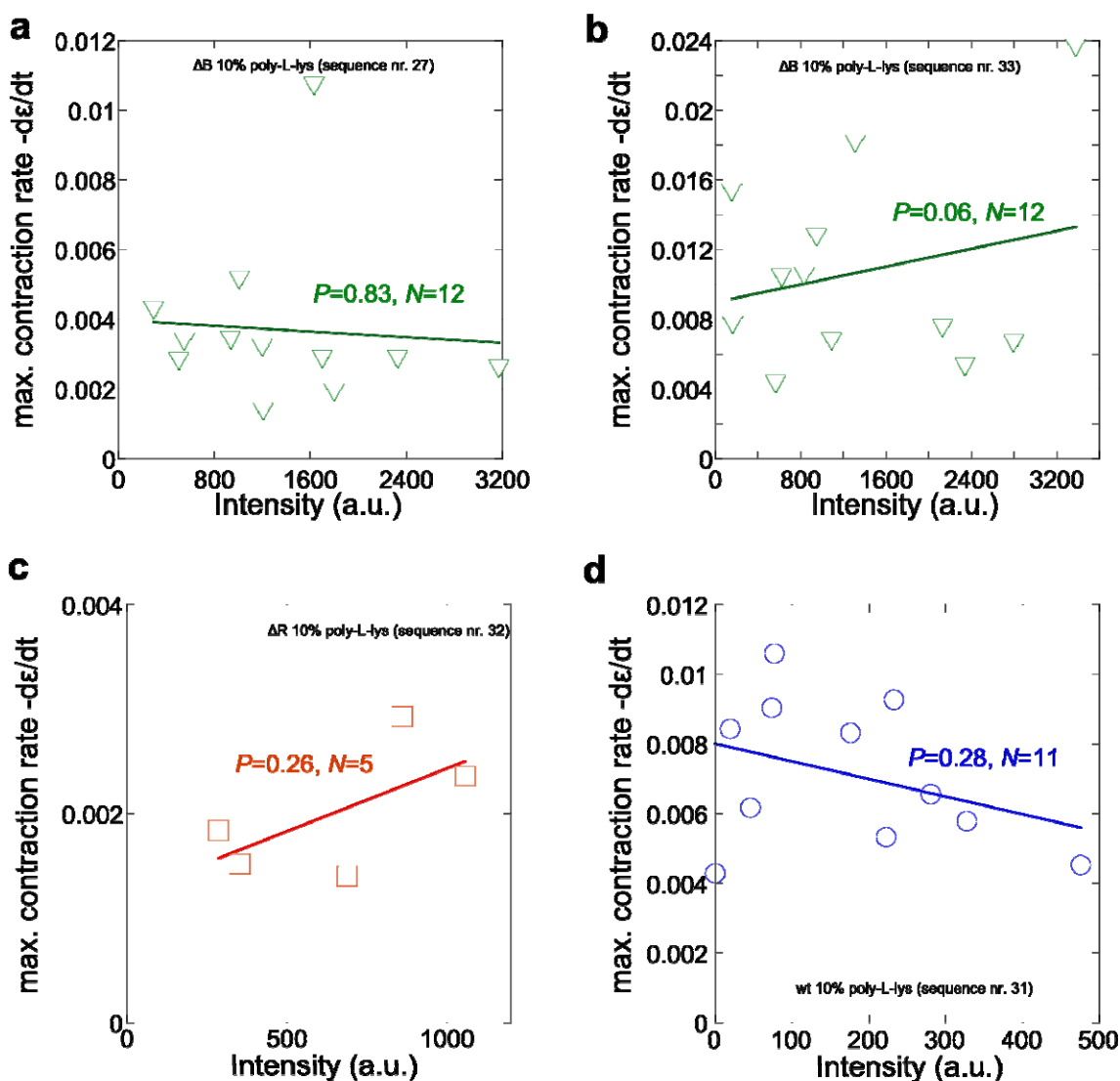
**Table S3.** Estimation of the minimum time required for a cytoskeleton to contract to 50% of its initial length. The time is calculated using the mean contraction strain rates in Table S.2A.

| Myosin type | Substrate: poly-L-lys concentr. | $t_{50\%}$ (minutes) |
|-------------|---------------------------------|----------------------|
| wt          | 0.01                            | 0.3 (=16s)           |
| $\Delta R$  | 0.01                            | 2.3                  |
| $\Delta B$  | 0.01                            | 4.4                  |
| wt          | 0.1                             | 1.6 (=96s)           |
| $\Delta R$  | 0.1                             | 3.6                  |
| $\Delta B$  | 0.1                             | 1.8                  |

### Relationship between contraction strain rate and content of myosin

Analysis of the relationship between contraction strain rate and content of myosin. The content of myosin is quantified by the mean fluorescence intensity in the cytoskeleton. The figures show the results for groups of at least 5 cells imaged simultaneously during the contraction progress. Each graph shows the line obtained by linear regression and the  $P$ -value that indicates the statistical significance for the null hypothesis of slope equal to zero.

**Figure S2.** Results for high adherence substrate: (a,b)  $\Delta B$ , (c)  $\Delta R$  and (d) wt myosin.



**Figure S3.** Results for low adherence substrate: (a,b)  $\Delta B$ , (c,d)  $\Delta R$  and (e,f) wt myosin.

