**Online supplement:**

**Table 1.** **Physical and baseline functional characteristics of bovine tracheal strips.**

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|  Control muscles Test muscles |
| EFS studies‡ |
| Weight, mg | Fresh | 13.9 ± 9.3  | 12.8 ± 3.9  |
| 24-h stored | 14.4 ± 9.0  | 11.4 ± 5.4  |
| Resting Force, g | Fresh | 0.5 ± 0.4  | 0.6 ± 0.1  |
| 24-h stored | 0.5 ± 0.4  | 0.7 ± 0.3  |
| Active force @64 Hz, g | Fresh | 21.8 ± 4.0  | 18.0 ± 0.2  |
| 24-h stored | 21.3 ± 8.6  | 17.7 ± 6.3  |
| Exogenous ACh studies# |
| Weight, mg \* | Fresh | 10.6 ± 3.0  | 10.6 ± 0.7  |
| 24-h stored | 6.9 ± 2.3  | 7.0 ± 1.4  |
| Resting Force, g \* | Fresh | 0.3 ± 0.1  | 0.6 ± 0.1  |
| 24-h stored | 0.7 ± 0.2  | 0.8 ± 0.2  |
| Active force @10-4M, g | Fresh | 23.7 ± 1.1  | 21.8 ± 2.0  |
| 24-h stored | 20.6 ± 1.8 | 21.0 ± 2.5  |
| ACh release studies¶ |
| Weight, mg \*\* | Fresh | 27.5 ± 7.0  | 27.3 ± 7.3  |
| 24-h stored | 20.7 ± 5.4  | 20.3 ± 5.8  |
| 48-h stored | 18.7 ± 4.1  | 21.5 ± 4.9  |
| Resting Force, g | Fresh | 0.8 ± 0.4  | 0.9 ± 0.5  |
| 24-h stored | 0.7 ± 0.4  | 0.7 ± 0.4  |
| 48-h stored | 0.5 ± 0.3  | 0.7 ± 0.4  |
| Active force @4 Hz, g | Fresh | 20.9 ± 7.4  | 20.9 ± 7.8  |
| 24-h stored | 19.7 ± 6.2  | 18.2 ± 5.2  |
| 48-h stored | 15.7 ± 3.8  | 16.7 ± 3.3  |
| ACh release @4 Hz, disintegrations | Fresh | 1242 ± 542  | 1197 ± 563  |
| 24-h stored | 1586 ±1059  | 1658 ± 1456  |
| 48-h stored | 1352 ± 563  | 1604 ± 889  |

Data are mean ± SD; ‡, n=24 (fresh and stored); #, n=24 (fresh), 32 (stored); ¶, n= 32 (fresh), 26 (24-h stored), 16 (48-h stored). \*, p<0.017 and \*\*, p=0.004 stored vs. fresh; p>0.194 for all other comparisons fresh vs. stored; p>0.153 for all comparisons between control and test muscles; interaction between fresh/stored vs. control/test p>0.081 for all comparisons (ANOVA).

Figure 1:



Figure 1. Relationships between ACh-release and isometric force at ES frequencies of 1 (x), 2 (□), 4 (●), 8 (◊), and 16 (○) Hz in 4 separate experiments. Data are mean and SD of percent changes from 4 Hz; continuous thick line is the regression model o$f the form y=\left(plateau-y\_{0}\right)•\left[1-e^{\left(-k•x\right)}\right]$, interrupted lines are the 95% CI; r2=0.887.