

Table S1. Correlation between meibomian gland morphology and clinical dry eye tests.

| | | OSDI | Osmolarity | TFBUT | OSS | Schirmer I | ME | MQ | LMA |
|---------------------------|----------|--------|------------|--------|--------|------------|--------|--------|--------|
| Percent dropout_UL | <i>r</i> | -0.051 | 0.094 | -0.137 | .246* | -0.126 | 0.002 | -0.025 | 0.147 |
| | <i>p</i> | 0.603 | 0.537 | 0.172 | 0.012 | 0.203 | 0.988 | 0.802 | 0.135 |
| Percent dropout_LL | <i>r</i> | -0.153 | .353* | 0.011 | -0.047 | .206* | -0.026 | 0.026 | -0.088 |
| | <i>p</i> | 0.102 | 0.011 | 0.905 | 0.621 | 0.029 | 0.783 | 0.786 | 0.348 |
| Percent dropout_middle_UL | <i>r</i> | 0.007 | 0.202 | 0.054 | 0.132 | -0.071 | -0.03 | -0.011 | 0.034 |
| | <i>p</i> | 0.942 | 0.177 | 0.593 | 0.18 | 0.476 | 0.761 | 0.913 | 0.729 |
| Percent dropout_middle_LL | <i>r</i> | -0.091 | -0.197 | 0.139 | 0.013 | -0.09 | -0.133 | 0.072 | -0.084 |
| | <i>p</i> | 0.334 | 0.165 | 0.145 | 0.889 | 0.34 | 0.158 | 0.448 | 0.37 |
| Number of glands_UL | <i>r</i> | -0.006 | .328* | 0.165 | .255** | 0.051 | 0.033 | -0.025 | -0.141 |
| | <i>p</i> | 0.952 | 0.026 | 0.099 | 0.009 | 0.606 | 0.737 | 0.798 | 0.153 |
| Number of glands_LL | <i>r</i> | -0.183 | -0.177 | .254** | -0.027 | -0.004 | .255** | .193* | 0.01 |
| | <i>p</i> | 0.05 | 0.214 | 0.007 | 0.773 | 0.968 | 0.006 | 0.04 | 0.916 |
| Distorted glands_UL | <i>r</i> | 0.059 | 0.054 | 0.006 | -0.025 | 0.074 | 0.15 | -0.177 | -0.106 |
| | <i>p</i> | 0.55 | 0.723 | 0.955 | 0.803 | 0.459 | 0.128 | 0.072 | 0.284 |
| Distorted glands_LL | <i>r</i> | 0.102 | -0.097 | -0.1 | -0.076 | 0.006 | -0.003 | 0.103 | -0.055 |
| | <i>p</i> | 0.28 | 0.498 | 0.297 | 0.417 | 0.95 | 0.975 | 0.278 | 0.562 |
| Tortuous glands_UL | <i>r</i> | -0.028 | -0.033 | 0.152 | .312** | 0.022 | .206* | 0.074 | -0.049 |
| | <i>p</i> | 0.776 | 0.828 | 0.129 | 0.001 | 0.828 | 0.036 | 0.453 | 0.62 |
| Tortuous glands_LL | <i>r</i> | .213* | 0.17 | 0.092 | .199* | 0.099 | -0.023 | 0.027 | -0.08 |
| | <i>p</i> | 0.022 | 0.233 | 0.335 | 0.033 | 0.297 | 0.804 | 0.773 | 0.397 |
| Hooked glands_UL | <i>r</i> | -0.035 | -0.054 | -0.032 | -0.092 | -0.098 | -0.127 | 0.087 | 0.184 |
| | <i>p</i> | 0.72 | 0.72 | 0.748 | 0.353 | 0.324 | 0.2 | 0.38 | 0.061 |
| Hooked glands_LL | <i>r</i> | -0.038 | 0.019 | -0.019 | 0.047 | 0.043 | -0.048 | 0.125 | 0.003 |
| | <i>p</i> | 0.688 | 0.895 | 0.84 | 0.62 | 0.653 | 0.612 | 0.185 | 0.973 |
| Dropout glands_UL | <i>r</i> | .196* | -0.031 | -0.114 | 0.086 | -0.185 | 0.109 | -0.04 | -0.087 |

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|-------------------------------|----------|--------------|--------------|--------|---------------|--------------|--------|--------|--------|
| | <i>p</i> | 0.046 | 0.838 | 0.255 | 0.381 | 0.062 | 0.27 | 0.686 | 0.377 |
| Dropout glands_LL | <i>r</i> | -0.002 | 0.007 | 0.123 | 0.162 | -0.032 | -0.142 | 0.044 | 0.141 |
| | <i>p</i> | 0.983 | 0.962 | 0.199 | 0.084 | 0.735 | 0.131 | 0.646 | 0.133 |
| Shortened glands_UL | <i>r</i> | 0.029 | 0.019 | -0.04 | 0.093 | -0.028 | 0.107 | -0.138 | 0.008 |
| | <i>p</i> | 0.767 | 0.898 | 0.691 | 0.345 | 0.782 | 0.279 | 0.161 | 0.934 |
| Shortened glands_LL | <i>r</i> | -0.063 | .300* | -0.001 | 0.078 | .198* | 0.032 | -0.011 | -0.065 |
| | <i>p</i> | 0.507 | 0.032 | 0.993 | 0.41 | 0.036 | 0.736 | 0.91 | 0.491 |
| Overlapping glands_UL | <i>r</i> | -0.059 | -0.195 | 0.145 | .264** | 0.104 | 0.031 | -0.074 | -0.122 |
| | <i>p</i> | 0.551 | 0.195 | 0.147 | 0.006 | 0.296 | 0.758 | 0.455 | 0.216 |
| Overlapping glands_LL | <i>r</i> | -0.171 | -0.03 | -0.1 | -0.12 | 0.048 | -0.007 | 0.009 | -0.016 |
| | <i>p</i> | 0.068 | 0.836 | 0.295 | 0.201 | 0.612 | 0.943 | 0.928 | 0.863 |
| Ghost glands_UL | <i>r</i> | -0.054 | 0.087 | 0.064 | -0.03 | -0.067 | 0.167 | -0.128 | -0.085 |
| | <i>p</i> | 0.586 | 0.566 | 0.523 | 0.762 | 0.502 | 0.091 | 0.197 | 0.388 |
| Ghost glands_LL | <i>r</i> | -0.03 | -0.086 | 0.142 | -0.1 | -0.107 | 0.052 | -0.12 | 0.103 |
| | <i>p</i> | 0.751 | 0.549 | 0.138 | 0.289 | 0.258 | 0.583 | 0.205 | 0.273 |
| Tadpoling_UL | <i>r</i> | .222* | -0.127 | 0.047 | 0.054 | -0.016 | 0.148 | -0.061 | -0.013 |
| | <i>p</i> | 0.022 | 0.401 | 0.639 | 0.586 | 0.873 | 0.131 | 0.539 | 0.892 |
| Tadpoling_LL | <i>r</i> | 0.047 | -0.266 | 0.011 | -0.147 | -0.154 | 0.064 | -0.139 | 0.103 |
| | <i>p</i> | 0.618 | 0.059 | 0.909 | 0.117 | 0.103 | 0.496 | 0.14 | 0.273 |
| Abnormal gap_UL | <i>r</i> | -0.044 | 0.028 | 0.125 | .223* | -0.089 | -0.024 | 0.041 | -0.115 |
| | <i>p</i> | 0.658 | 0.853 | 0.215 | 0.022 | 0.372 | 0.811 | 0.682 | 0.243 |
| Abnormal gap_LL | <i>r</i> | 0.169 | 0.096 | 0.048 | -0.072 | -0.071 | -0.011 | 0.169 | 0.022 |
| | <i>p</i> | 0.07 | 0.504 | 0.614 | 0.444 | 0.454 | 0.91 | 0.072 | 0.815 |
| Fluffy areas_UL | <i>r</i> | 0.051 | -0.282 | 0.092 | -0.143 | -0.02 | -0.094 | 0.049 | -0.061 |
| | <i>p</i> | 0.602 | 0.058 | 0.36 | 0.146 | 0.841 | 0.341 | 0.621 | 0.54 |
| Fluffy areas_LL | <i>r</i> | 0.096 | . | 0.155 | -0.073 | -0.064 | -0.121 | 0.086 | 0.042 |
| | <i>p</i> | 0.308 | . | 0.105 | 0.436 | 0.502 | 0.2 | 0.364 | 0.655 |
| No extention to lid margin_UL | <i>r</i> | -0.114 | -0.152 | 0.044 | -0.058 | 0.096 | 0.03 | 0.016 | -0.105 |

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|-------------------------------|----------|--------|--------|--------|--------|-------|-------|-------|--------|
| | <i>p</i> | 0.247 | 0.314 | 0.663 | 0.554 | 0.337 | 0.764 | 0.871 | 0.287 |
| No extention to lid margin_LL | <i>r</i> | -0.053 | -0.047 | -0.174 | -0.085 | 0.037 | 0.11 | 0.035 | -0.019 |
| | <i>p</i> | 0.571 | 0.741 | 0.067 | 0.368 | 0.697 | 0.242 | 0.709 | 0.841 |

UL= upper lids; LL= lower lids; TFBUT= tear film break-up time; OSS= ocular surface staining; ME= meibum expressibility; MQ= meibum quality; LMA= limbal margin abnormality score. *P-values from Spearman rank correlation analysis.