

Table S1 Clinical characteristics of the MGD and control groups (n=817)

| Parameter | MGD group | Control group | P value |
|--|--------------|---------------|---------|
| No. of participants | 361 | 52 | – |
| No. of eyes | 717 | 100 | – |
| Age (years), mean (SE) | 45.83 (0.56) | 33.98 (1.04) | <0.001 |
| Sex, no of participants (%) | | | 0.004 |
| Male | 129 (36) | 24 (46) | |
| Female | 232 (64) | 28 (54) | |
| Severity, no. of eyes (%) | | | <0.001 |
| Grade 0 | 0 (0) | 100 (100) | |
| Grade 1 | 140 (20) | 0 (0) | |
| Grade 2 | 269 (38) | 0 (0) | |
| Grade 3 | 225 (31) | 0 (0) | |
| Grade 4 | 73 (10) | 0 (0) | |
| Grade 5 | 10 (1) | 0 (0) | |
| OSDI, mean (SE) | 27.42 (0.72) | 6.73 (0.76) | <0.001 |
| FBUT (s), mean (SE) | 4.47 (0.08) | 9.69 (0.29) | <0.001 |
| Meibum expressibility, no. of eyes (%) | | | <0.001 |
| 0 | 133 (18) | 100 (100) | |
| 1 | 352 (49) | 0 (0) | |
| 2 | 191 (27) | 0 (0) | |
| 3 | 41 (6) | 0 (0) | |
| Meibum quality, no. of eyes (%) | | | <0.001 |
| 0 | 0 (0) | 100 (100) | |
| 1 | 211 (29) | 0 (0) | |
| 2 | 418 (58) | 0 (0) | |
| 3 | 88 (12) | 0 (0) | |
| LLT (nm), mean (SE) | 72.52 (1.51) | 79.43 (2.30) | 0.07 |
| SI, mean (SE) | 8.03 (0.06) | 8.09 (0.09) | 0.22 |
| Gland area (%) | 33.29 | 40.04 | <0.001 |

The independent samples *t*-test was used for comparisons of age and OSDI, while the Mann-Whitney test was used to analyze sex at the participants level. A generalized estimating equation model with the side of the eye as an exchangeable within-subject variable was applied, with age and sex being used as covariates for comparisons of severity, FBUT, and meibum expressibility and quality, LLT, SI, and gland area at the eye level. MGD, meibomian gland dysfunction; SE, standard error; OSDI, ocular surface disease index; FBUT, fluorescein-stained tear-film break-up time; LLT, lipid layer thickness; SI, signal intensity,

Table S2 Baseline characteristics across categories SI in the LipiFlow treatment cohort

| Parameter | SI ≤7 | 7 < SI <9 | SI ≥9 | P value |
|--|--------------|--------------|--------------|---------|
| Age (years), mean (SE) | 42.03 (2.17) | 32.47 (1.30) | 35.17 (2.16) | 0.12 |
| Sex, no. of eyes (%) | | | | 0.47 |
| Male | 9 (26) | 5 (16) | 4 (33) | |
| Female | 25 (74) | 27 (84) | 8 (67) | |
| Severity, no. of eyes (%) | | | | 0.31 |
| Grade 1 | 0 (0) | 0 (0) | 0 (0) | |
| Grade 2 | 14 (41) | 14 (44) | 5 (42) | |
| Grade 3 | 14 (41) | 16 (50) | 6 (50) | |
| Grade 4 | 6 (18) | 2 (6) | 1 (8) | |
| Grade 5 | 0 (0) | 0 (0) | 0 (0) | |
| OSDI, mean (SE) | 33.06 (2.40) | 36.44 (2.93) | 35.33 (5.73) | 0.94 |
| FBUT (s), mean (SE) | 5.06 (0.60) | 4.46 (0.33) | 3.92 (0.48) | 0.54 |
| Meibum expressibility, no. of eyes (%) | | | | 0.14 |
| 0 | 1 (3) | 0 (0) | 0 (0) | |
| 1 | 18 (53) | 18 (56) | 7 (58) | |
| 2 | 13 (38) | 12 (38) | 4 (33) | |
| 3 | 2 (6) | 2 (6) | 1 (8) | |
| Meibum quality, no. of eyes (%) | | | | 0.003 |
| 0 | 0 (0) | 0 (0) | 0 (0) | |
| 1 | 4 (12) | 14 (44) | 4 (33) | |
| 2 | 11 (32) | 15 (47) | 7 (58) | |
| 3 | 19 (56) | 3 (9) | 1 (8) | |
| LLT (nm), mean (SE) | 70.91 (3.73) | 83.56 (3.07) | 84.75 (4.25) | 0.03 |
| Gland area% | 38.12 | 34.95 | 37.64 | <0.001 |

One-way analysis of variance was used for comparisons of age and OSDI, while the independent nonparametric test was used to analyze sex at the participants level. A generalized estimating equation model was applied with the side of the eye serving as an exchangeable within-subject variable and with age and sex serving as covariates for comparisons of severity, FBUT, meibum expressibility and quality, LLT, SI, and gland area at the eye level. SI, signal intensity; SE, standard error; OSDI, ocular surface disease index; FBUT, fluorescein-stained tear-film break-up time; LLT, lipid layer thickness.