**Supplementary Table 1 : Mapping of the conjunctival epithelium**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **N° of passages** | **Cumulative Cell Doubling** | **% of clonogenic colonies** | **% of total colonies** |  |
| **IF** | 6.67 ± 0.52 | 33.45 ± 2.66 | 96.87 ± 1.12 | 60.12 ± 4.32 | t-test 0.29<p<1 ANOVA 0.29<p<0.97 |
| **SF** | 6.43 ± 2.00 | 32.28 ± 4.76 | 93.40 ± 2.75 | 51.79 ± 8.85 |
| **IB** | 6.50 ± 1.38 | 34.55 ± 2.42 | 93.93 ± 2.75 | 55.85 ± 10.62 |
| **SB** | 5.33 ± 0.61 | 4.15 ± 0.43 | 94.46 ± 1.39 | 47.91 ± 9.44 | t-test 0.09<p<0.22ANOVA 0.06<p<0.79 |
| **NB** | 4.50 ± 0.22 | 20.02 ± 2.40 | 87.65 ± 5.98 | 49.37 ± 9.02 | t-test 0.22<p<0.94ANOVA 0.34<p<0.94 |
| **TB** | 5.00 ± 1.26 | 23.87 ± 3.03 | 89.63 ± 6.73 | 51.00 ± 10.22 |

**Supplementary Table 2: Evaluation of the proper conjunctival cell culture conditions on plate**

1. K control condition versus XF condition; LSTs performed on cells plated at standard seeding concentration

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **N° of passages** | **Cumulative Cell Doubling** | **% of clonogenic colonies** | **% of total colonies** |
| **passage II** | **passage IV** | **passage II** | **passage IV** |
| **K** | 6.33 ± 0.15 | 34.01 ± 3.10 | 89.66 ±3.50 | 61.88 ± 2.95 | 66.13 ± 5.30 | 20.17 ± 9.80 |
| **XF** | 7.33 ± 0.45 | 41.83 ± 6.00 | 91.03 ± 4.01 | 62.47 ± 3.85 | 76.07 ± 12.15 | 12.67 ± 2.70 |
|  | t-test 0.17<p<0.98, ANOVA 0.34<p<0.98 |

1. K control condition versus KSFM condition; LSTs performed on cells plated at standard seeding concentration

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **N° of passages** | **Cumulative Cell Doubling** | **% of clonogenic colonies** | **% of total colonies** |
| **passage II** | **passage IV** | **passage II** | **passage IV** |
| **K** | 7.67 ± 0.85 | 37.87 ± 3.75 | 93.74 ± 1.57 | 78,05 ± 4.85 | 63.17 ± 4.05 | 18.87 ± 4.00 |
| **XF** | 6.33 ± 0.35 | 24.62 ±1.00 | 92.74 ± 1.81 | 75.23 ± 6.90 | * 1. ± 8.00
 | 19.87 ± 4.81 |
|  | t-test 0.07<p<0.70, ANOVA 0.16<p<0.70 |

1. K control condition versus XF condition; LSTs performed on cells plated at lower seeding concentration

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **N° of passages** | **Cumulative Cell Doubling** | **% of clonogenic colonies** | **% of total colonies** |
| **passage II** | **passage IV** | **passage II** | **passage IV** |
| **K** | 5.67 ± 0.16 | 31.62 ± 1.08 | 96.88 ± 2.26 | 66.86 ± 4.43 | 83.30 ± 21.69 | 18.20 ± 1.67 |
| **XF** | 4.33 ± 0.16 | 22.21 ± 3.99 | 95.32 ± 2.27 | 59.93 ± 22.23 | 63.73 ± 5.23 | 15.57 ± 6.67 |
|  | p<0.05 | t-test 0.11<p<0.82, ANOVA 0.12<p<0.82 |

**Supplementary Table 3: Assessment of the optimal conjunctival cell culture conditions on amniotic membrane**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **N° of passages** | **Cumulative Cell Doubling** | **% of clonogenic colonies** | **% of total colonies** |
| **passage III** | **passage IV** | **passage III** | **passage IV** |
| **K+FL** | 4.67 ± 0.45 | 17.54 ± 6.25 | 39.95 ± 6.05 | 37.04 ± 6.10 | 6.47 ± 2.04 | 2.30 ± 0.55 |
| **K-FL** | 5.00 ± 0.05 | 21.45 ± 2.13 | 42.54 ± 6.65 | 23.47 ± 11.00 | 2.73 ± 0.92 | 4.55 ±2.20 |
| **XF** | 7.20 ± 0.30 | 34.92 ± 1.85 | 75.39 ± 2.70 | 58.50 ± 3.75 | 27.14 ± 4.47 | 18.70 ± 2.25 |
|  | ANOVA and t-test p<0.05 |

**Supplementary Table 4: Assessment of the optimal conjunctival cell culture conditions on GEL**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | ***N° of passages*** | ***Cumulative Cell Doubling*** | ***% of clonogenic colonies*** | ***% of total colonies*** |
| ***passage III*** | ***passage V*** | ***passage III*** | ***passage V*** |
| **K** | 5.80 ± 0.36 | 17.85 ± 3.61 | 83.04 ± 6.57 | 47.71 ± 5.68 | 43.72 ± 5.24 | 5.30 ± 2.48 |
| **XF** | 7.00 ± 0.50 | 28.41 ±4 .21 | 79.62 ± 7.12 | 60.54 ± 6.25 | 31.40 ± 6.94 | 8.92 ± 3.39 |
|  | t-test 0.09<p<0.85,ANOVA 0.07<p<0.85 |