**Table S1** The arrangement of the MSAP DNA methylation characteristics for regenerants obtained via in vitro anther culture

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Sample** | **Trial** | **CG\_DN (%)** | **CXG\_DNM****(%)** | **CG\_DM****(%)** | **CXG\_DM****(%)** | **Cu2+****(µM)** | **Ag+****(µM)** | **Time** **(days)** | **GPs** |
| 1 | M1 | 11.36 | 16.793 | 13.001 | 19.178 | 0.1 | 0 | 21 | 0.64 |
| 2 | M1 | 11.377 | 16.811 | 13.002 | 19.287 | 0.1 | 0 | 21 | 0.64 |
| 3 | M1 | 11.403 | 16.752 | 13.033 | 19.214 | 0.1 | 0 | 21 | 0.64 |
| 4 | M1 | 11.411 | 16.724 | 13.044 | 19.128 | 0.1 | 0 | 21 | 0.634 |
| 5 | M1 | 11.362 | 16.74 | 12.987 | 19.222 | 0.1 | 0 | 21 | 0.64 |
| 6 | M2 | 12.002 | 19.092 | 12.272 | 17.157 | 0.1 | 10 | 28 | 0.67 |
| 7 | M2 | 12.016 | 19.079 | 12.244 | 17.339 | 0.1 | 10 | 28 | 0.67 |
| 8 | M2 | 12.022 | 18.983 | 12.248 | 17.209 | 0.1 | 10 | 28 | 0.67 |
| 9 | M3 | 12.127 | 18.788 | 12.184 | 17.104 | 0.1 | 60 | 35 | 1.09 |
| 10 | M3 | 12.109 | 18.746 | 12.134 | 17.167 | 0.1 | 60 | 35 | 1.09 |
| 11 | M3 | 12.121 | 18.755 | 12.151 | 17.181 | 0.1 | 60 | 35 | 1.09 |
| 12 | M3 | 12.129 | 18.786 | 12.18 | 17.096 | 0.1 | 60 | 35 | 1.09 |
| 13 | M3 | 12.126 | 18.794 | 12.162 | 17.147 | 0.1 | 60 | 35 | 1.09 |
| 14 | M4 | 11.515 | 18.906 | 12.35 | 18.182 | 5 | 60 | 28 | 0.45 |
| 15 | M4 | 11.51 | 18.947 | 12.344 | 18.247 | 5 | 60 | 28 | 0.45 |
| 16 | M5 | 6.735 | 0.162 | 6.964 | 0.87 | 5 | 0 | 35 | 0.10 |
| 17 | M5 | 10.422 | 0.382 | 10.886 | 0.458 | 5 | 0 | 35 | 0.10 |
| 18 | M5 | 6.664 | 0.161 | 6.946 | 0.663 | 5 | 0 | 35 | 0.10 |
| 19 | M5 | 10.419 | 0.624 | 10.949 | 0.221 | 5 | 0 | 35 | 0.10 |
| 20 | M6 | 12.118 | 19.406 | 11.981 | 16.693 | 5 | 10 | 21 | 2.12 |
| 21 | M6 | 12.175 | 19.12 | 11.951 | 16.699 | 5 | 10 | 21 | 2.12 |
| 22 | M6 | 12.119 | 19.386 | 12.01 | 16.557 | 5 | 10 | 21 | 2.12 |
| 23 | M6 | 12.127 | 19.39 | 11.983 | 16.691 | 5 | 10 | 21 | 2.12 |
| 24 | M6 | 12.198 | 19.157 | 11.953 | 16.862 | 5 | 10 | 21 | 2.12 |
| 25 | M7 | 11.703 | 18.206 | 12.489 | 17.483 | 10 | 10 | 35 | 2.91 |
| 26 | M7 | 11.731 | 18.268 | 12.501 | 17.605 | 10 | 10 | 35 | 2.91 |
| 27 | M7 | 11.702 | 18.277 | 12.491 | 17.5 | 10 | 10 | 35 | 2.91 |
| 28 | M8 | 12.023 | 19.237 | 12.277 | 17.382 | 10 | 60 | 21 | 1.77 |
| 29 | M8 | 12.016 | 19.259 | 12.244 | 17.54 | 10 | 60 | 21 | 1.77 |
| 30 | M8 | 12.057 | 19.192 | 12.265 | 17.521 | 10 | 60 | 21 | 1.77 |
| 31 | M9 | 12.227 | 19.97 | 11.955 | 16.172 | 10 | 0 | 28 | 0.54 |
| 32 | M9 | 12.275 | 19.99 | 11.976 | 16.301 | 10 | 0 | 28 | 0.54 |
| 33 | M9 | 12.254 | 19.98 | 11.969 | 16.256 | 10 | 0 | 28 | 0.54 |
| 34 | M9 | 12.273 | 19.922 | 11.952 | 16.356 | 10 | 0 | 28 | 0.54 |
| 35 | M9 | 12.268 | 19.924 | 11.957 | 16.329 | 10 | 0 | 28 | 0.54 |

M1-M9 trials used to regenerate GPs; Cu2+ and Ag+ reflect ion concentration in mM in the medium; T is the time of in vitro tissue cultures in days; GPs states for the number of green plants per 100 anthers (GPs) for each of the trials tested.

**Table S2** The arrangement of statistics for conditional moderation analyses based on model 3. RL – relative likelihood, AW - Akaike's weight, LLCI – ULCI is a 95% confidence interval

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Analysis | Conditional moderation | Model summary |   | Figure |
|  Predictors | ** | *SE* | *LLCI* | *ULCI* | RL | AW |
| A | CG-DNM moderated by Cu conditional on time for GPs | CG\_DNM | -8.88\*\* | 0.61 | -10.12 | -7.64 | 1 | 0.132 | Fig. S1 |
| Cu | -36.29\*\* | 2.19 | -40.79 | -31.79 |
| Int\_1 = CG\_DNM x Cu | 3.02\*\* | 0.18 | 2.64 | 3.39 |
| Time | -6.03\*\* | 0.28 | -6.61 | -5.46 |
| Int\_2 = CG\_DNM x Time | 0.49\*\* | 0.023 | 0.44 | 0.54 |
| Int\_3 = Cu x Time | 1.61\*\* | 0.08 | 1.45 | 1.77 |
| Int\_4 = CG\_DNM x Cu x Time | -0.13\*\* | 0.01 | -0.15 | -0.12 |
| Model Summary: *F(7,27)* = 258.17, *p* < 0.00, *R2* = 0.985 |
| Test of highest order unconditional interaction (X\* W \* Z): *F(1,27)* = 425.77, *p* < 0.00 |
| B | CG-DNM moderated by Ag conditional on Time for GPs | CG\_DNM | 1.24\* | 0.73 | -0.26 | 2.74 | 0.95 | 0.12 | Fig. S2 |
| Ag | -31.63\*\* | 2.74 | -37.25 | -26.01 |
| Int\_1 = CG\_DNM x Ag | 2.62\*\* | 0.23 | 2.16 | 3.09 |
| Time | 0.36\* | 0.25 | -0.14 | 0.87 |
| Int\_2 = CG\_DNM x Time | -0.03\* | 0.02 | -0.08 | 0.01 |
| Int\_3 = Ag x Time | 1.09\*\* | 0.09 | 0.9 | 1.29 |
| Int\_4 = CG\_DNM x Ag x Time | -0.09\*\* | 0.01 | -0.11 | -0.07 |
| Model Summary: *F(7,27)* = 27.06, *p* < 0.001, *R2* = 0.875 |
| Test of highest order unconditional interaction (X\* W \* Z): *F(1,27)*=132.36, *p* < 0.001 |
| C | CXG-DNM moderated by Cu conditional on Time for GPs | CXG\_DNM | -5.01\*\* | 1.25 | -7.57 | -2.45 | 0.93 | 0.12 | Fig. S3 |
| Cu | -34.45\*\* | 11.41 | -57.86 | -11.03 |
| Int\_1 = CXG\_DNM x Cu | 1.83\*\* | 0.6 | 0.59 | 3.07 |
| Time | -4.63\*\* | 1.02 | -6.72 | -2.5263 |
| Int\_2 = CXG\_DNM x Time | 0.25\*\* | 0.05 | 0.1329 | 0.36 |
| Int\_3 = Cu x Time | 1.37\*\* | 0.4 | 0.55 | 2.18 |
| Int\_4 = CXG\_DNM x Cu x Time | -0.07\*\* | 0.02 | -0.12 | -0.03 |
| Model Summary: *F(7,27)* = 18.06, *p* < 0.001, *R2* = 0.824 |
| Test of highest order unconditional interaction (X\* W \* Z): *F(1,27)* = 11.74, *p* < 0.001 |
| D | CXG-DNM moderated by Ag conditional on Time for GPs | CXG\_DNM | 1.19\*\* | 0.29 | 0.59 | 1.79 | 0.92 | 0.12 | Fig. S4 |
| Ag | -7.79\*\* | 1.59 | -11.06 | -4.54 |
| Int\_1 = CXG\_DNM x Ag | 0.42\*\* | 0.08 | 0.25 | 0.59 |
| Time | 0.52\*\* | 0.14 | 0.23 | 0.81 |
| Int\_2 = CXG\_DNM x Time | -0.03\* | 0.01 | -0.05 | -0.02 |
| Int\_3 = Ag x Time | 0.47\*\* | 0.0576 | 0.35 | 0.59 |
| Int\_4 = CXG\_DNM x Ag x Time | -0.02\*\* | 0.003 | -0.03 | -0.02 |
| Model Summary: *F(7,27)* = 17.66, *p* < 0.001, *R2* = 0.8206 |
| Test of highest order unconditional interaction (X\* W \* Z): *F(1,27)* = 68.97, *p* < 0.001 |
| E | CG-DM moderated by Cu conditional on Time for GPs | CG\_DM | 14.03\*\* | 0.86 | 12.27 | 15.79 | 0.99 | 0.13 | Fig. S5 |
| Cu | 53.27\*\* | 3.27 | 46.56 | 59.99 |
| Int\_1 = CG\_DM x Cu | -4.33\*\* | 0.26 | -4.88 | -3.79 |
| Time | 8.30\*\* | 0.43 | 7.42 | 9.19 |
| Int\_2 = CG\_DM x Time | -0.68\*\* | 0.035 | -0.75 | -0.61 |
| Int\_3 = Cu x Time | -2.21\*\* | 0.12 | -2.45 | -1.97 |
| Int\_4 = CG\_DM x Cu x Time | 0.18\*\* | 0.01 | 0.16 | 0.19 |
| Model Summary: *F(7,27)* =190.27, *p* < 0.001, *R2* = 0.98 |
| Test of highest order unconditional interaction (X\* W \* Z): *F(1,27)* = 360.01, *p* < 0.001 |
| F | CG-DM moderated by Ag conditional on Time for GPs | CG\_DM | 2.16\* | 0.93 | 0.25 | 4.08 | 0.9 | 0.12 | Fig. S6 |
| Ag | 29.21\*\* | 3.84 | 21.34 | 37.08 |
| Int\_1 = CG\_DM x Ag | -2.38\*\* | 0.31 | -3.02 | -1.74 |
| Time | 0.77\* | 0.34 | 0.064 | 1.47 |
| Int\_2 = CG\_DM x Time | -0.05 | 0.03 | -0.11 | 0 |
| Int\_3 = Ag x Time | -0.92\*\* | 0.12 | -1.177 | -0.6696 |
| Int\_4 = CG\_DM x Ag x Time | 0.07 | 0.01 | 0.0545 | 0.096 |
| Model Summary: *F(7,27)* = 13.92, *p* < 0.001, *R2* = 0.783 |
| Test of highest order unconditional interaction (X\* W \* Z): *F(1,27)* = 55.53, *p* < 0.001 |
| G | CXG-DM moderated by Cu conditional on Time for GPs | CXG\_DM | 7.29\*\* | 0.56 | 6.1328 | 8.44 | 0.99 | 0.13 | Fig. S7 |
| Cu | 35.79\*\* | 2.67 | 30.3 | 41.27 |
| Int\_1 = CXG\_DM x Cu | -2.06\*\* | 0.15 | -2.37 | -1.75 |
| Time | 5.99\*\* | 0.41 | 5.14 | 6.84 |
| Int\_2 = CXG\_DM x Time | -0.35\*\* | 0.02 | -0.39 | -0.3 |
| Int\_3 = Cu x Time | -1.51\*\* | 0.1 | -1.72 | -1.29 |
| Int\_4 = CXG\_DM x Cu x Time | 0.09\*\* | 0 | 0.07 | 0.1 |
| Model Summary: *F(7,27)* = 116.46, *p* < 0.001, *R2* = 0.968 |
| Test of highest order unconditional interaction (X\* W \* Z): *F(1,27)* =221.23, *p* < 0.001 |
| H | CXG-DM moderated by Ag conditional on Time for GPs | CXG\_DM | 0.67 | 0.37 | -0.09 | 1.44 | 0.88 | 0.12 | Fig. S8 |
| Ag | 12.69\*\* | 2.24 | 8.09 | 17.29 |
| Int\_1 = CXG\_DM x Ag | -0.72\*\* | 0.13 | -0.99 | -0.46 |
| Time | 0.42\* | 0.2 | 0.011 | 0.83 |
| Int\_2 = CXG\_DM x Time | -0.02 | 0.01 | -0.04 | 0 |
| Int\_3 = Ag x Time | -0.42\*\* | 0.08 | -0.58 | -0.26 |
| Int\_4 = CXG\_DM x Ag x Time | 0.02\*\* | 0 | 0.015 | 0.033 |
| Model Summary: *F(7,27)* = 11.16, *p* < 0.001, *R2* = 0.743 |
| Test of highest order unconditional interaction (X\* W \* Z): *F(1,29)* = 29.83, *p* < 0.001 |
| I | delta moderated by Cu conditional on Time for GPs | delta | 3.06\*\* | 0.12 | 2.81 | 3.31 | 0.99 | 0.49 | Fig. 1 |
| Ag | -0.93\*\* | 0.05 | -1.03 | -0.84 |
| Int\_1 = delta x Cu | -0.86\*\* | 0.04 | -0.95 | -0.77 |
| Time | -0.21\*\* | 0.01 | -0.23 | -0.19 |
| Int\_2 = delta x Time | -0.15\*\* | 0 | -0.16 | -0.14 |
| Int\_3 = Cu x Time | 0.04\*\* | 0 | 0.04 | 0.04 |
| Int\_4 = delta x Cu x Time | 0.03\*\* | 0 | 0.03 | 0.04 |
|   |   | Model Summary: *F(7,27)* = 249.55, *p* < 0.001, *R2* = 0.985 |   |   |   |
|   |   | Test of highest order unconditional interaction (X\* W \* Z): *F(1,27)* = 527.15, *p* < 0.00 |   |   |   |
| J | delta moderated by Cu conditional on Time for GPs | delta | 0.71\*\* | 0.19 | 0.32 | 1.09 | 1 | 0.51 | Fig. 2 |
| Ag | -0.87\*\* | 0.06 | -0.99 | -0.75 |
| Int\_1 = delta x Cu | -0.61\*\* | 0.04 | -0.69 | -0.52 |
| Time | 0.02 | 0.01 | -0.01 | 0.04 |
| Int\_2 = delta x Time | -0.03\*\* | 0 | -0.04 | -0.01 |
| Int\_3 = Cu x Time | 0.03\*\* | 0 | 0.03 | 0.03 |
| Int\_4 = delta x Cu x Time | 0.02\* | 0 | 0.02 | 0.02 |
| Model Summary: *F(7,27)* = 46.99, *p* < 0.00, *R2*=.924 |
| Test of highest order unconditional interaction (X\* W \* Z): *F(1,27)* = 219.76, *p*< 0.001 |
| K | delta moderated by Ag + Cu conditional on Time for GPs | delta | 0.85\*\* | 0.21 | 0.41 | 1.29 | NC | NC | Fig. 3 |
| Ag + Cu | -0.57\*\* | 0.04 | -0.65 | -0.49 |
| Int\_1 = delta x (Ag+Cu) | -0.39\*\* | 0.03 | -0.45 | -0.34 |
| Time | -0.05\*\* | 0.01 | -0.08 | -0.03 |
| Int\_2 = delta x Time | -0.03\*\* | 0 | -0.05 | -0.01 |
| Int\_3 = (Ag+Cu) x Time | 0.02\*\* | 0 | 0.02 | 0.02 |
| Int\_4 = delta x (Ag+Cu) x Time | 0.014\*\* | 0 | 0.01 | 0.02 |
| Model Summary: *F(7,27)*= 45.23, *p* < 0.001, *R2*=.921 |
| Test of highest order unconditional interaction (X\* W \* Z): *F(1,27)*= 200.75, *p* < 0.001 |

GP100Ant – green plants per 100 anthers is the dependent variable; CG-DN, CXG-DN, CG-DM, CXG-DM, and delta are predictors (X), whereas Cu, Ag and Cu+Ag – moderators conditional on the time of *in vitro* anther cultures. LLCI and ULCI state for 95% confidence interval. RL – relative likelihood of the model. AW - Akaike weights. NC – not calculated.

**Table S3** The arrangement of conditional X\*W interaction at values of Z

|  |  |
| --- | --- |
| **Analysis** | **Test of conditional X\*W interaction at value(s) of Z** |
| **Time** | **Effect** | ***F*** | ***df1*** | ***df2*** | ***p*** |
| A | 21.0000 | .2061 | 15.4195 | 1.0000 | 27.0000 | .0005 |
| 28.0000 | -.7325 | 770.4137 | 1.0000 | 27.0000 | .0000 |
| 35.0000 | -1.6711 | 1006.1677 | 1.0000 | 27.0000 | .0000 |
| B | 21.0000 | .7112 | 135.3943 | 1.0000 | 27.0000 | .0000 |
| 28.0000 | .0739 | 57.1721 | 1.0000 | 27.0000 | .0000 |
| 35.0000 | -.5635 | 122.4555 | 1.0000 | 27.0000 | .0000 |
| C | 21.0000 | .3051 | 3.6267 | 1.0000 | 27.0000 | .0676 |
| 28.0000 | -.2030 | 43.5984 | 1.0000 | 27.0000 | .0000 |
| 35.0000 | -.7111 | 25.0175 | 1.0000 | 27.0000 | .0000 |
| D | 21.0000 | -.1110 | 6.0551 | 1.0000 |  27.0000 | .0205 |
| 28.0000 | -.2882 |  37.1531 | 1.0000 |  27.0000 | .0000 |
| 35.0000 | -.4654 |  64.7329 | 1.0000 |  27.0000 | .0000 |
| E | 21.0000 |  -.5485 | 60.4222 |  1.0000 | 27.0000 | .0000 |
| 28.0000 | .7128 | 536.4972 |  1.0000 | 27.0000 | .0000 |
| 35.0000 |  1.9741 | 677.4036 |  1.0000 | 27.0000 | .0000 |
| F | 21.0000 |  -.7983 | 56.5029 |  1.0000 | 27.0000 | .0000 |
| 28.0000 |  -.2717 | 30.4939 |  1.0000 | 27.0000 | .0000 |
| 35.0000 | .2550 | 18.3148 |  1.0000 | 27.0000 | .0002 |
| G | 21.0000 | -.2306 | 54.6913 | 1.0000 | 27.0000 | .0000 |
| 28.0000 | .3792 | 481.0660 | 1.0000 | 27.0000 | .0000 |
| 35.0000 | .9889 | 327.4424 | 1.0000 | 27.0000 | .0000 |
| H | 21.0000 | -.2204 | 35.7084 | 1.0000 | 27.0000 | .0000 |
| 28.0000 | -.0525 | 33.9460 | 1.0000 | 27.0000 | .0000 |
| 35.0000 | .1154 | 19.2444 | 1.0000 | 27.0000 | .0002 |
| I | 21.0000 | -.1212 | 98.6626 | 1.0000 | 27.0000 | .0000 |
| 28.0000 | .1252 | 665.1685 | 1.0000 | 27.0000 | .0000 |
| 35.0000 | .3716 | 1074.4112 | 1.0000 | 27.0000 | .0000 |
| J | 21.0000 | -.1599 | 231.6092 | 1.0000 | 27.0000 | .0000 |
| 28.0000 | -.0111 | 28.1299 | 1.0000 | 27.0000 | .0000 |
| 35.0000 | .1376 | 189.8337 | 1.0000 | 27.0000 | .0000 |
| K | 21.0000 | -.1037 | 206.3139 | 1.0000 | 27.0000 | .0000  |
| 28.0000 | -.0074 | 12.0382 | 1.0000 | 27.0000 | .0018  |
| 35.0000 | .0889 | 160.0681 | 1.0000 | 27.0000 | .0000  |

The CG\_DM, CXG\_DM, CG\_DNM, CXG\_DNM were the predictors of GPs in the A-H analysis moderated by either Cu2+ or Ag+ conditional on the time. In the analysis I-J delta was used as a predictor of the GPs whereas Cu2+ was a moderator in I, Ag+ in J and (Cu+Ag) in K conditional on the time of in vitro anther cultures. The moderation conditional on the time with p>0.05 were not significant. For more details refer to Supplementary Table 4-14).

**Table S4** Conditional CG\_DNM\*Cu interaction at values of the moderator Time. For the analysis PROCESS macro v. 3.4 by A.F. Hayes was used

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Time** | **Effect** | ***SE*** | ***t*** | ***p*** | ***LLCI*** | ***ULCI*** |
| 21 | 0.2061 | 0.0525 | 3.9268 | 0.0005 | 0.0984 | 0.3138 |
| 21.7 | 0.1123 | 0.0486 | 2.3094 | 0.0288 | 0.0125 | 0.212 |
| 21.8 | 0.0986 | 0.0481 | 2.0519 | 0.05 | 0 | 0.1972 |
| 22.4 | 0.0184 | 0.0449 | 0.4104 | 0.6847 | -0.0736 | 0.1105 |
| 23.1 | -0.0754 | 0.0413 | -1.828 | 0.0786 | -0.1601 | 0.0092 |
| 23.2 | -0.084 | 0.041 | -2.0519 | 0.05 | -0.1681 | 0 |
| 23.8 | -0.1693 | 0.0379 | -4.4688 | 0.0001 | -0.247 | -0.0916 |
| 24.5 | -0.2632 | 0.0348 | -7.5694 | 0 | -0.3345 | -0.1918 |
| 25.2 | -0.357 | 0.032 | -11.1597 | 0 | -0.4227 | -0.2914 |
| 25.9 | -0.4509 | 0.0297 | -15.2023 | 0 | -0.5117 | -0.39 |
| 26.6 | -0.5447 | 0.0279 | -19.5403 | 0 | -0.6019 | -0.4875 |
| 27.3 | -0.6386 | 0.0268 | -23.8642 | 0 | -0.6935 | -0.5837 |
| 28 | -0.7325 | 0.0264 | -27.7563 | 0 | -0.7866 | -0.6783 |
| 28.7 | -0.8263 | 0.0268 | -30.8369 | 0 | -0.8813 | -0.7713 |
| 29.4 | -0.9202 | 0.0279 | -32.9243 | 0 | -0.9775 | -0.8628 |
| 30.1 | -1.014 | 0.0298 | -34.076 | 0 | -1.0751 | -0.953 |
| 30.8 | -1.1079 | 0.0321 | -34.498 | 0 | -1.1738 | -1.042 |
| 31.5 | -1.2018 | 0.0349 | -34.4264 | 0 | -1.2734 | -1.1301 |
| 32.2 | -1.2956 | 0.038 | -34.058 | 0 | -1.3737 | -1.2176 |
| 32.9 | -1.3895 | 0.0414 | -33.5314 | 0 | -1.4745 | -1.3045 |
| 33.6 | -1.4833 | 0.045 | -32.9349 | 0 | -1.5758 | -1.3909 |
| 34.3 | -1.5772 | 0.0488 | -32.3212 | 0 | -1.6773 | -1.4771 |
| 35 | -1.6711 | 0.0527 | -31.7201 | 0 | -1.7792 | -1.563 |

Green color indicates the time range when conditional moderation is significant. Blue – the time when moderation is not significant.

**Table S5** Conditional CG\_DNM\*Ag interaction at values of the moderator Time. For the analysis PROCESS macro v. 3.4 by A.F. Hayes was used

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Time** | **Effect** | ***SE*** | ***t*** | ***p*** | ***LLCI*** | ***ULCI*** |
| 21 | 0.7112 | 0.0611 | 11.6359 | 0 | 0.5858 | 0.8367 |
| 21.7 | 0.6475 | 0.0556 | 11.6372 | 0 | 0.5333 | 0.7617 |
| 22.4 | 0.5838 | 0.0502 | 11.6359 | 0 | 0.4808 | 0.6867 |
| 23.1 | 0.52 | 0.0447 | 11.6298 | 0 | 0.4283 | 0.6118 |
| 23.8 | 0.4563 | 0.0393 | 11.615 | 0 | 0.3757 | 0.5369 |
| 24.5 | 0.3926 | 0.0339 | 11.5833 | 0 | 0.323 | 0.4621 |
| 25.2 | 0.3288 | 0.0285 | 11.5171 | 0 | 0.2702 | 0.3874 |
| 25.9 | 0.2651 | 0.0233 | 11.3744 | 0 | 0.2173 | 0.3129 |
| 26.6 | 0.2013 | 0.0182 | 11.0417 | 0 | 0.1639 | 0.2387 |
| 27.3 | 0.1376 | 0.0135 | 10.1644 | 0 | 0.1098 | 0.1654 |
| 28 | 0.0739 | 0.0098 | 7.5612 | 0 | 0.0538 | 0.0939 |
| 28.6 | 0.017 | 0.0083 | 2.0519 | 0.05 | 0 | 0.0341 |
| 28.7 | 0.0101 | 0.0083 | 1.2184 | 0.23 | -0.0069 | 0.0272 |
| 29 | -0.018 | 0.0088 | -2.0519 | 0.05 | -0.036 | 0 |
| 29.4 | -0.0536 | 0.0102 | -5.2608 | 0 | -0.0745 | -0.0327 |
| 30.1 | -0.1174 | 0.0141 | -8.2942 | 0 | -0.1464 | -0.0883 |
| 30.8 | -0.1811 | 0.0189 | -9.5724 | 0 | -0.2199 | -0.1423 |
| 31.5 | -0.2448 | 0.024 | -10.1925 | 0 | -0.2941 | -0.1955 |
| 32.2 | -0.3086 | 0.0293 | -10.5376 | 0 | -0.3687 | -0.2485 |
| 32.9 | -0.3723 | 0.0346 | -10.7506 | 0 | -0.4434 | -0.3013 |
| 33.6 | -0.4361 | 0.04 | -10.8923 | 0 | -0.5182 | -0.3539 |
| 34.3 | -0.4998 | 0.0455 | -10.9923 | 0 | -0.5931 | -0.4065 |
| 35 | -0.5635 | 0.0509 | -11.066 | 0 | -0.668 | -0.459 |

Green color indicates the time range when conditional moderation is significant. Blue – the time when moderation is not significant.

**Table S6** Conditional CXG\_DNM\*Cu interaction at values of the moderator Time. For the analysis PROCESS macro v. 3.4 by A.F. Hayes was used

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Time** | **Effect** | ***SE*** | ***t*** | ***p*** | ***LLCI*** | ***ULCI*** |
| 21 | 0.3051 | 0.1602 | 1.9044 | 0.0676 | -0.0236 | 0.6338 |
| 21.7 | 0.2543 | 0.1457 | 1.7459 | 0.0922 | -0.0446 | 0.5532 |
| 22.4 | 0.2035 | 0.1312 | 1.5514 | 0.1325 | -0.0656 | 0.4726 |
| 23.1 | 0.1527 | 0.1168 | 1.3077 | 0.202 | -0.0869 | 0.3923 |
| 23.8 | 0.1019 | 0.1025 | 0.9942 | 0.329 | -0.1084 | 0.3121 |
| 24.5 | 0.0511 | 0.0884 | 0.5779 | 0.5681 | -0.1302 | 0.2324 |
| 25.2 | 0.0003 | 0.0745 | 0.0034 | 0.9973 | -0.1527 | 0.1532 |
| 25.9 | -0.0506 | 0.0612 | -0.8263 | 0.4159 | -0.1761 | 0.075 |
| 26.6 | -0.1004 | 0.0489 | -2.0519 | 0.05 | -0.2008 | 0 |
| 26.6 | -0.1014 | 0.0487 | -2.0819 | 0.047 | -0.2013 | -0.0015 |
| 27.3 | -0.1522 | 0.0379 | -4.0131 | 0.0004 | -0.23 | -0.0744 |
| 28 | -0.203 | 0.0307 | -6.6029 | 0 | -0.2661 | -0.1399 |
| 28.7 | -0.2538 | 0.0299 | -8.4971 | 0 | -0.3151 | -0.1925 |
| 29.4 | -0.3046 | 0.0358 | -8.517 | 0 | -0.378 | -0.2312 |
| 30.1 | -0.3554 | 0.0459 | -7.7448 | 0 | -0.4496 | -0.2612 |
| 30.8 | -0.4062 | 0.0581 | -6.9948 | 0 | -0.5254 | -0.2871 |
| 31.5 | -0.457 | 0.0713 | -6.4127 | 0 | -0.6033 | -0.3108 |
| 32.2 | -0.5078 | 0.085 | -5.9742 | 0 | -0.6823 | -0.3334 |
| 32.9 | -0.5586 | 0.0991 | -5.6397 | 0 | -0.7619 | -0.3554 |
| 33.6 | -0.6095 | 0.1133 | -5.3788 | 0 | -0.8419 | -0.377 |
| 34.3 | -0.6603 | 0.1277 | -5.1708 | 0 | -0.9223 | -0.3983 |
| 35 | -0.7111 | 0.1422 | -5.0017 | 0 | -1.0028 | -0.4194 |
| 35 | -0.5635 | 0.0509 | -11.066 | 0 | -0.668 | -0.459 |

Green color indicates the time range when conditional moderation is significant. Blue – the time when moderation is not significant.

**Table S7** Conditional CXG\_DNM\*Ag interaction at values of the moderator Time. For the analysis PROCESS macro v. 3.4 by A.F. Hayes was used

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Time** | **Effect** | ***SE*** | ***t*** | ***p*** | ***LLCI*** | ***ULCI*** |
| 21 | -0.111 | 0.0451 | -2.4607 | 0.0205 | -0.2036 | -0.0184 |
| 21.7 | -0.1288 | 0.0449 | -2.8682 | 0.0079 | -0.2209 | -0.0366 |
| 22.4 | -0.1465 | 0.0448 | -3.2726 | 0.0029 | -0.2383 | -0.0546 |
| 23.1 | -0.1642 | 0.0447 | -3.671 | 0.001 | -0.256 | -0.0724 |
| 23.8 | -0.1819 | 0.0448 | -4.0607 | 0.0004 | -0.2738 | -0.09 |
| 24.5 | -0.1996 | 0.045 | -4.4392 | 0.0001 | -0.2919 | -0.1074 |
| 25.2 | -0.2174 | 0.0452 | -4.8042 | 0.0001 | -0.3102 | -0.1245 |
| 25.9 | -0.2351 | 0.0456 | -5.1537 | 0 | -0.3287 | -0.1415 |
| 26.6 | -0.2528 | 0.0461 | -5.4861 | 0 | -0.3473 | -0.1582 |
| 27.3 | -0.2705 | 0.0466 | -5.8002 | 0 | -0.3662 | -0.1748 |
| 28 | -0.2882 | 0.0473 | -6.0953 | 0 | -0.3853 | -0.1912 |
| 28.7 | -0.306 | 0.048 | -6.371 | 0 | -0.4045 | -0.2074 |
| 29.4 | -0.3237 | 0.0488 | -6.6272 | 0 | -0.4239 | -0.2235 |
| 30.1 | -0.3414 | 0.0497 | -6.8642 | 0 | -0.4434 | -0.2393 |
| 30.8 | -0.3591 | 0.0507 | -7.0824 | 0 | -0.4631 | -0.2551 |
| 31.5 | -0.3768 | 0.0517 | -7.2826 | 0 | -0.483 | -0.2707 |
| 32.2 | -0.3945 | 0.0528 | -7.4656 | 0 | -0.503 | -0.2861 |
| 32.9 | -0.4123 | 0.054 | -7.6324 | 0 | -0.5231 | -0.3014 |
| 33.6 | -0.43 | 0.0552 | -7.7839 | 0 | -0.5433 | -0.3166 |
| 34.3 | -0.4477 | 0.0565 | -7.9214 | 0 | -0.5637 | -0.3317 |
| 35 | -0.4654 | 0.0578 | -8.0457 | 0 | -0.5841 | -0.3467 |
| 35 | -0.7111 | 0.1422 | -5.0017 | 0 | -1.0028 | -0.4194 |
| 35 | -0.5635 | 0.0509 | -11.066 | 0 | -0.668 | -0.459 |

Green color indicates the time range when conditional moderation is significant. Blue – the time when moderation is not significant.

**Table S8** Conditional CG\_DM\*Cu interaction at values of the moderator Time. For the analysis PROCESS macro v. 3.4 by A.F. Hayes was used

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Time** |  **Effect** | ***SE*** | ***t*** | ***p*** | ***LLCI*** | ***ULCI*** |
| 21 | -0.5485 | 0.0706 | -7.7732 | 0 | -0.6933 | -0.4037 |
| 21.7 | -0.4224 | 0.0646 | -6.5342 | 0 | -0.555 | -0.2897 |
| 22.4 | -0.2962 | 0.0589 | -5.032 | 0 | -0.417 | -0.1754 |
| 23.1 | -0.1701 | 0.0533 | -3.1911 | 0.0036 | -0.2795 | -0.0607 |
| 23.5 | -0.1036 | 0.0505 | -2.0519 | 0.05 | -0.2071 | 0 |
| 23.8 | -0.044 | 0.048 | -0.9158 | 0.3679 | -0.1425 | 0.0546 |
| 24.5 | 0.0822 | 0.0431 | 1.9058 | 0.0674 | -0.0063 | 0.1706 |
| 24.5 | 0.088 | 0.0429 | 2.0519 | 0.05 | 0 | 0.176 |
| 25.2 | 0.2083 | 0.0387 | 5.3792 | 0 | 0.1288 | 0.2877 |
| 25.9 | 0.3344 | 0.0351 | 9.5405 | 0 | 0.2625 | 0.4063 |
| 26.6 | 0.4605 | 0.0323 | 14.2371 | 0 | 0.3942 | 0.5269 |
| 27.3 | 0.5867 | 0.0309 | 19.0088 | 0 | 0.5234 | 0.65 |
| 28 | 0.7128 | 0.0308 | 23.1624 | 0 | 0.6497 | 0.776 |
| 28.7 | 0.8389 | 0.0321 | 26.141 | 0 | 0.7731 | 0.9048 |
| 29.4 | 0.9651 | 0.0347 | 27.845 | 0 | 0.894 | 1.0362 |
| 30.1 | 1.0912 | 0.0382 | 28.5496 | 0 | 1.0128 | 1.1696 |
| 30.8 | 1.2173 | 0.0425 | 28.6221 | 0 | 1.1301 | 1.3046 |
| 31.5 | 1.3435 | 0.0474 | 28.3523 | 0 | 1.2462 | 1.4407 |
| 32.2 | 1.4696 | 0.0526 | 27.9222 | 0 | 1.3616 | 1.5776 |
| 32.9 | 1.5957 | 0.0582 | 27.4341 | 0 | 1.4764 | 1.7151 |
| 33.6 | 1.7219 | 0.0639 | 26.9408 | 0 | 1.5907 | 1.853 |
| 34.3 | 1.848 | 0.0698 | 26.4681 | 0 | 1.7047 | 1.9912 |
| 35 | 1.9741 | 0.0758 | 26.027 | 0 | 1.8185 | 2.1297 |

Green color indicates the time range when conditional moderation is significant. Blue – the time when moderation is not significant.

**Table S9** Conditional CG\_DM\*Ag interaction at values of the moderator Time. For the analysis PROCESS macro v. 3.4 by A.F. Hayes was used

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Time** | **Effect** | ***SE*** | ***t*** | ***p*** | ***LLCI*** | ***ULCI*** |
| 21 | -0.7983 | 0.1062 | -7.5168 | 0 | -1.0162 | -0.5804 |
| 21.7 | -0.7456 | 0.0997 | -7.4775 | 0 | -0.9502 | -0.541 |
| 22.4 | -0.693 | 0.0933 | -7.426 | 0 | -0.8845 | -0.5015 |
| 23.1 | -0.6403 | 0.087 | -7.3582 | 0 | -0.8189 | -0.4618 |
| 23.8 | -0.5876 | 0.0809 | -7.2683 | 0 | -0.7535 | -0.4218 |
| 24.5 | -0.535 | 0.0748 | -7.1484 | 0 | -0.6885 | -0.3814 |
| 25.2 | -0.4823 | 0.069 | -6.9872 | 0 | -0.624 | -0.3407 |
| 25.9 | -0.4297 | 0.0635 | -6.769 | 0 | -0.5599 | -0.2994 |
| 26.6 | -0.377 | 0.0582 | -6.4722 | 0 | -0.4965 | -0.2575 |
| 27.3 | -0.3243 | 0.0534 | -6.0682 | 0 | -0.434 | -0.2147 |
| 28 | -0.2717 | 0.0492 | -5.5221 | 0 | -0.3726 | -0.1707 |
| 28.7 | -0.219 | 0.0456 | -4.7976 | 0.0001 | -0.3127 | -0.1253 |
| 29.4 | -0.1663 | 0.043 | -3.8702 | 0.0006 | -0.2545 | -0.0781 |
| 30.1 | -0.1137 | 0.0414 | -2.7485 | 0.0105 | -0.1985 | -0.0288 |
| 30.5 | -0.084 | 0.041 | -2.0519 | 0.05 | -0.1681 | 0 |
| 30.8 | -0.061 | 0.0409 | -1.4912 | 0.1475 | -0.1449 | 0.0229 |
| 31.5 | -0.0083 | 0.0417 | -0.2001 | 0.8429 | -0.0938 | 0.0772 |
| 32.2 | 0.0443 | 0.0436 | 1.0171 | 0.3181 | -0.0451 | 0.1338 |
| 32.9 | 0.0952 | 0.0464 | 2.0519 | 0.05 | 0 | 0.1904 |
| 33 | 0.097 | 0.0465 | 2.0859 | 0.0466 | 0.0016 | 0.1924 |
| 33.6 | 0.1497 | 0.0502 | 2.9783 | 0.0061 | 0.0466 | 0.2528 |
| 34.3 | 0.2023 | 0.0547 | 3.7016 | 0.001 | 0.0902 | 0.3145 |
| 35 | 0.255 | 0.0596 | 4.2796 | 0.0002 | 0.1327 | 0.3772 |

Green color indicates the time range when conditional moderation is significant. Blue – the time when moderation is not significant.

**Table S10** Conditional CXG\_DM\*Cu interaction at values of the moderator Time. For the analysis PROCESS macro v. 3.4 by A.F. Hayes was used

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Time** | **Effect** | ***SE*** | ***t*** | ***p*** | ***LLCI*** | ***ULCI*** |
| 21 | -0.2306 | 0.0312 | -7.3954 | 0 | -0.2946 | -0.1666 |
| 21.7 | -0.1696 | 0.0275 | -6.1785 | 0 | -0.2259 | -0.1133 |
| 22.4 | -0.1086 | 0.0238 | -4.5557 | 0.0001 | -0.1576 | -0.0597 |
| 23.1 | -0.0477 | 0.0204 | -2.3331 | 0.0273 | -0.0896 | -0.0057 |
| 23.2 | -0.0412 | 0.0201 | -2.0519 | 0.05 | -0.0824 | 0 |
| 23.8 | 0.0133 | 0.0173 | 0.7695 | 0.4483 | -0.0222 | 0.0488 |
| 24 | 0.0336 | 0.0164 | 2.0519 | 0.05 | 0 | 0.0672 |
| 24.5 | 0.0743 | 0.0147 | 5.0624 | 0 | 0.0442 | 0.1044 |
| 25.2 | 0.1353 | 0.0128 | 10.5356 | 0 | 0.1089 | 0.1616 |
| 25.9 | 0.1962 | 0.0122 | 16.135 | 0 | 0.1713 | 0.2212 |
| 26.6 | 0.2572 | 0.0128 | 20.0471 | 0 | 0.2309 | 0.2835 |
| 27.3 | 0.3182 | 0.0147 | 21.7039 | 0 | 0.2881 | 0.3483 |
| 28 | 0.3792 | 0.0173 | 21.9332 | 0 | 0.3437 | 0.4146 |
| 28.7 | 0.4401 | 0.0204 | 21.5698 | 0 | 0.3983 | 0.482 |
| 29.4 | 0.5011 | 0.0238 | 21.0352 | 0 | 0.4522 | 0.55 |
| 30.1 | 0.5621 | 0.0274 | 20.4936 | 0 | 0.5058 | 0.6184 |
| 30.8 | 0.6231 | 0.0312 | 19.9989 | 0 | 0.5591 | 0.687 |
| 31.5 | 0.684 | 0.035 | 19.5631 | 0 | 0.6123 | 0.7558 |
| 32.2 | 0.745 | 0.0388 | 19.1839 | 0 | 0.6653 | 0.8247 |
| 32.9 | 0.806 | 0.0427 | 18.8545 | 0 | 0.7183 | 0.8937 |
| 33.6 | 0.867 | 0.0467 | 18.5675 | 0 | 0.7712 | 0.9628 |
| 34.3 | 0.9279 | 0.0507 | 18.3164 | 0 | 0.824 | 1.0319 |
| 35 | 0.9889 | 0.0547 | 18.0954 | 0 | 0.8768 | 1.1011 |

Green color indicates the time range when conditional moderation is significant. Blue – the time when moderation is not significant.

**Table S11** Conditional CXG\_DM\*Ag interaction at values of the moderator Time. For the analysis PROCESS macro v. 3.4 by A.F. Hayes was used

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Time** | **Effect** | ***SE*** | ***t*** | ***p*** | ***LLCI*** | ***ULCI*** |
| 21 | -0.2204 | 0.0369 | -5.9757 | 0 | -0.296 | -0.1447 |
| 21.7 | -0.2036 | 0.0339 | -6.011 | 0 | -0.2731 | -0.1341 |
| 22.4 | -0.1868 | 0.0309 | -6.0507 | 0 | -0.2501 | -0.1234 |
| 23.1 | -0.17 | 0.0279 | -6.0953 | 0 | -0.2272 | -0.1128 |
| 23.8 | -0.1532 | 0.0249 | -6.145 | 0 | -0.2044 | -0.102 |
| 24.5 | -0.1364 | 0.022 | -6.1991 | 0 | -0.1816 | -0.0913 |
| 25.2 | -0.1196 | 0.0191 | -6.2545 | 0 | -0.1589 | -0.0804 |
| 25.9 | -0.1028 | 0.0163 | -6.3019 | 0 | -0.1363 | -0.0694 |
| 26.6 | -0.086 | 0.0136 | -6.315 | 0 | -0.114 | -0.0581 |
| 27.3 | -0.0693 | 0.0111 | -6.2213 | 0 | -0.0921 | -0.0464 |
| 28 | -0.0525 | 0.009 | -5.8263 | 0 | -0.071 | -0.034 |
| 28.7 | -0.0357 | 0.0076 | -4.7191 | 0.0001 | -0.0512 | -0.0202 |
| 29.4 | -0.0189 | 0.0072 | -2.6166 | 0.0144 | -0.0337 | -0.0041 |
| 29.6 | -0.015 | 0.0073 | -2.0519 | 0.05 | -0.0301 | 0 |
| 30.1 | -0.0021 | 0.0081 | -0.2591 | 0.7975 | -0.0188 | 0.0146 |
| 30.8 | 0.0147 | 0.0099 | 1.4775 | 0.1511 | -0.0057 | 0.0351 |
| 31.1 | 0.0225 | 0.011 | 2.0519 | 0.05 | 0 | 0.0451 |
| 31.5 | 0.0315 | 0.0123 | 2.5661 | 0.0162 | 0.0063 | 0.0566 |
| 32.2 | 0.0483 | 0.0149 | 3.2465 | 0.0031 | 0.0178 | 0.0788 |
| 32.9 | 0.0651 | 0.0176 | 3.692 | 0.001 | 0.0289 | 0.1012 |
| 33.6 | 0.0818 | 0.0205 | 3.9991 | 0.0004 | 0.0398 | 0.1238 |
| 34.3 | 0.0986 | 0.0234 | 4.2207 | 0.0002 | 0.0507 | 0.1466 |
| 35 | 0.1154 | 0.0263 | 4.3868 | 0.0002 | 0.0614 | 0.1694 |

Green color indicates the time range when conditional moderation is significant. Blue – the time when moderation is not significant.

**Table S12** Conditional delta\*Cu interaction at values of the moderator Time. For the analysis PROCESS macro v. 3.4 by A.F. Hayes was used

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Time** | **Effect** | ***SE*** | ***t*** | ***p*** | ***LLCI*** | ***ULCI*** |
| 21 | -0.1212 | 0.0122 | -9.9329 | 0 | -0.1463 | -0.0962 |
| 21.7 | -0.0966 | 0.0112 | -8.603 | 0 | -0.1196 | -0.0736 |
| 22.4 | -0.072 | 0.0103 | -7.0064 | 0 | -0.093 | -0.0509 |
| 23.1 | -0.0473 | 0.0093 | -5.0675 | 0 | -0.0665 | -0.0282 |
| 23.8 | -0.0227 | 0.0084 | -2.6871 | 0.0122 | -0.04 | -0.0054 |
| 24 | -0.0169 | 0.0082 | -2.0519 | 0.05 | -0.0338 | 0 |
| 24.5 | 0.002 | 0.0076 | 0.2604 | 0.7965 | -0.0136 | 0.0175 |
| 24.9 | 0.0147 | 0.0072 | 2.0519 | 0.05 | 0 | 0.0294 |
| 25.2 | 0.0266 | 0.0068 | 3.921 | 0.0005 | 0.0127 | 0.0405 |
| 25.9 | 0.0513 | 0.0061 | 8.4275 | 0 | 0.0388 | 0.0637 |
| 26.6 | 0.0759 | 0.0055 | 13.8088 | 0 | 0.0646 | 0.0872 |
| 27.3 | 0.1005 | 0.0051 | 19.8197 | 0 | 0.0901 | 0.111 |
| 28 | 0.1252 | 0.0049 | 25.7909 | 0 | 0.1152 | 0.1351 |
| 28.7 | 0.1498 | 0.0049 | 30.7832 | 0 | 0.1398 | 0.1598 |
| 29.4 | 0.1745 | 0.0051 | 34.1357 | 0 | 0.164 | 0.185 |
| 30.1 | 0.1991 | 0.0056 | 35.8425 | 0 | 0.1877 | 0.2105 |
| 30.8 | 0.2238 | 0.0062 | 36.345 | 0 | 0.2111 | 0.2364 |
| 31.5 | 0.2484 | 0.0069 | 36.1378 | 0 | 0.2343 | 0.2625 |
| 32.2 | 0.273 | 0.0077 | 35.5783 | 0 | 0.2573 | 0.2888 |
| 32.9 | 0.2977 | 0.0085 | 34.8774 | 0 | 0.2802 | 0.3152 |
| 33.6 | 0.3223 | 0.0094 | 34.1463 | 0 | 0.303 | 0.3417 |
| 34.3 | 0.347 | 0.0104 | 33.4388 | 0 | 0.3257 | 0.3683 |
| 35 | 0.3716 | 0.0113 | 32.7782 | 0 | 0.3484 | 0.3949 |

Green color indicates the time range when conditional moderation is significant. Blue – the time when moderation is not significant.

**Table S13** Conditional delta\*Ag interaction at values of the moderator Time. For the analysis PROCESS macro v. 3.4 by A.F. Hayes was used

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Time** | **Effect** | ***SE*** | ***t*** | ***p*** | ***LLCI*** | ***ULCI*** |
| 21 | -0.1599 | 0.0105 | -15.2187 | 0 | -0.1814 | -0.1383 |
| 21.7 | -0.145 | 0.0095 | -15.2253 | 0 | -0.1645 | -0.1254 |
| 22.4 | -0.1301 | 0.0085 | -15.2243 | 0 | -0.1476 | -0.1126 |
| 23.1 | -0.1152 | 0.0076 | -15.209 | 0 | -0.1308 | -0.0997 |
| 23.8 | -0.1004 | 0.0066 | -15.1658 | 0 | -0.1139 | -0.0868 |
| 24.5 | -0.0855 | 0.0057 | -15.0672 | 0 | -0.0971 | -0.0738 |
| 25.2 | -0.0706 | 0.0048 | -14.8525 | 0 | -0.0804 | -0.0608 |
| 25.9 | -0.0557 | 0.0039 | -14.378 | 0 | -0.0637 | -0.0478 |
| 26.6 | -0.0409 | 0.0031 | -13.2808 | 0 | -0.0472 | -0.0345 |
| 27.3 | -0.026 | 0.0024 | -10.6808 | 0 | -0.031 | -0.021 |
| 28 | -0.0111 | 0.0021 | -5.3038 | 0 | -0.0154 | -0.0068 |
| 28.3 | -0.0043 | 0.0021 | -2.0519 | 0.05 | -0.0086 | 0 |
| 28.7 | 0.0038 | 0.0022 | 1.71 | 0.0987 | -0.0008 | 0.0083 |
| 28.7 | 0.0046 | 0.0022 | 2.0519 | 0.05 | 0 | 0.0091 |
| 29.4 | 0.0186 | 0.0027 | 6.874 | 0 | 0.0131 | 0.0242 |
| 30.1 | 0.0335 | 0.0034 | 9.7312 | 0 | 0.0265 | 0.0406 |
| 30.8 | 0.0484 | 0.0043 | 11.2862 | 0 | 0.0396 | 0.0572 |
| 31.5 | 0.0633 | 0.0052 | 12.1939 | 0 | 0.0526 | 0.0739 |
| 32.2 | 0.0781 | 0.0061 | 12.7659 | 0 | 0.0656 | 0.0907 |
| 32.9 | 0.093 | 0.0071 | 13.1506 | 0 | 0.0785 | 0.1075 |
| 33.6 | 0.1079 | 0.008 | 13.423 | 0 | 0.0914 | 0.1244 |
| 34.3 | 0.1228 | 0.009 | 13.6243 | 0 | 0.1043 | 0.1413 |
| 35 | 0.1376 | 0.01 | 13.778 | 0 | 0.1171 | 0.1581 |

Green color indicates the time range when conditional moderation is significant. Blue – the time when moderation is not significant.

**Table S14** Conditional delta\*(Ag+Cu) interaction at values of the moderator Time. For the analysis PROCESS macro v. 3.4 by A.F. Hayes was used

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Time** | **Effect** | ***SE*** | ***t*** | ***p*** | ***LLCI*** | ***ULCI*** |
| 21 | -0.1037 | 0.0072 | -14.3636 | 0 | -0.1185 | -0.0889 |
| 21.7 | -0.0941 | 0.0066 | -14.3109 | 0 | -0.1076 | -0.0806 |
| 22.4 | -0.0844 | 0.0059 | -14.2288 | 0 | -0.0966 | -0.0723 |
| 23.1 | -0.0748 | 0.0053 | -14.0998 | 0 | -0.0857 | -0.0639 |
| 23.8 | -0.0652 | 0.0047 | -13.8939 | 0 | -0.0748 | -0.0556 |
| 24.5 | -0.0556 | 0.0041 | -13.5573 | 0 | -0.064 | -0.0471 |
| 25.2 | -0.0459 | 0.0035 | -12.9914 | 0 | -0.0532 | -0.0387 |
| 25.9 | -0.0363 | 0.003 | -12.0153 | 0 | -0.0425 | -0.0301 |
| 26.6 | -0.0267 | 0.0026 | -10.3191 | 0 | -0.032 | -0.0214 |
| 27.3 | -0.017 | 0.0023 | -7.5037 | 0 | -0.0217 | -0.0124 |
| 28 | -0.0074 | 0.0021 | -3.4696 | 0.0018 | -0.0118 | -0.003 |
| 28.2 | -0.0044 | 0.0021 | -2.0519 | 0.05 | -0.0088 | 0 |
| 28.7 | 0.0022 | 0.0022 | 1.0082 | 0.3223 | -0.0023 | 0.0068 |
| 28.9 | 0.0046 | 0.0023 | 2.0519 | 0.05 | 0 | 0.0093 |
| 29.4 | 0.0119 | 0.0025 | 4.7907 | 0.0001 | 0.0068 | 0.0169 |
| 30.1 | 0.0215 | 0.0029 | 7.4593 | 0 | 0.0156 | 0.0274 |
| 30.8 | 0.0311 | 0.0034 | 9.2187 | 0 | 0.0242 | 0.038 |
| 31.5 | 0.0407 | 0.0039 | 10.3789 | 0 | 0.0327 | 0.0488 |
| 32.2 | 0.0504 | 0.0045 | 11.1655 | 0 | 0.0411 | 0.0596 |
| 32.9 | 0.06 | 0.0051 | 11.7179 | 0 | 0.0495 | 0.0705 |
| 33.6 | 0.0696 | 0.0057 | 12.1193 | 0 | 0.0578 | 0.0814 |
| 34.3 | 0.0793 | 0.0064 | 12.4202 | 0 | 0.0662 | 0.0924 |
| 35 | 0.0889 | 0.007 | 12.6518 | 0 | 0.0745 | 0.1033 |

Green color indicates the time range when conditional moderation is significant. Blue – the time when moderation is not significant.

**Fig. S1** Conditional effect of the focal predictor (Model 3). GP100Ant – green plants per 100 anthers, CG\_DNM – *de novo* methylation of the CG contexts. Variables: Cu2+ – W, Time – Z



Moderation of GPs due to the de novo methylation of the CG DNA context by Cu2+ conditional on the time of *in vitro* anther cultures (Table S2, Analysis A). The longer the time of in vitro anther tissue cultures containing Cu2+ at the highest concentrations in the medium, the higher the number of GPs with the minimum de novo methylation of the CG context should be regenerated. With increased CG context de novo methylation, the reversed phenomenon is observed. The conditional CG\_DNM\*Cu interaction starts at the value of the time equal to 23.8 days (Table S4).

**Fig. S2** Conditional effect of the focal predictor (Model 3). GP100Ant – green plants per 100 anthers, CG\_DNM – *de novo* methylation of the CG contexts. Variables: Ag+ – W, Time – Z



The longest time of in vitro anther tissue cultures containing Ag+ at the highest concentrations in the medium concentrations, the higher the number of GP with the minimum de novo methylation of the CG context (Table S2, Analysis B). With increased *de novo* methylation, the regeneration of the GPs is more probable at higher Ag+ concentrations when a short time of the tissue cultures is applied. Increasing the time above 28 days may significantly reduce the number of GPs. The conditional CG\_DNM\*Ag interaction is not valid at the time equal to 28.7 – 29.4 days (Table S5).

**Fig. S3** Conditional effect of the focal predictor (Model 3). GP100Ant – green plants per 100 anthers, CXG\_DNM – *de novo* methylation of the CXG contexts. Variables: Cu2+ – W, Time – Z



Moderation of the GPs due to the de novo methylation of the CXG DNA sequence context by Cu2+ (Table S2, Analysis C) conditional on the time shows that the longer the time of *in vitro* anther culture and the higher the concentration of the Cu2+ ions the greater the number of the GPs. The regenerants evaluated under such conditions should have a low level of *de novo* DNA methylation of the CXG contexts. However, under the low and moderate concentration of the Cu2+ ions, some GPs may also be regenerated. They should have exhibited a high level of the CXG context *de novo* methylation. The conditional CXG\_DNM\*Cu interaction starts at the time equal to 26.6 days (Table S6).

**Fig. S4** Conditional effect of the focal predictor (Model 3). GP100Ant – green plants per 100 anthers, CXG\_DNM – de novo methylation of the CXG contexts. Variables: Ag+ – W, Time – Z



Moderation of GPs due to the de novo methylation of the CXG contexts moderated by Ag+ conditional on the time (Table S2, Analysis D) shows that the longer the time of tissue cultures containing Ag+ at the highest concentrations, the higher the number of GP with the minimum de novo methylation of the CG context. Under a long time of in vitro anther tissue cultures and the highest Ag+ ion concentration, the plants with the highest de novo methylation of the CG context should be regenerated; however, regeneration under such conditions should not be perfect. The conditional CXG\_DNM\*Ag interaction is valid, starting from the 21 days of *in vitro* anther cultures (Table S7).

**Fig. S5** Conditional effect of the focal predictor (Model 3). GP100Ant – green plants per 100 anthers, CG\_DMV – demethylation of the CG contexts. Variables: Cu2+ – W, Time – Z



Moderation of the GPs due to the demethylation of the CG contexts moderated by Cu2+ conditional on the time of *in vitro* anther cultures (Table S2, Analysis E) shows that the longer the time of tissue cultures containing Cu2+ at the lowest concentrations the higher number of GP with the minimum demethylation of the CG context. Under a long time of tissue culture conditions and the highest Cu2+ ion concentration, the plants with the highest demethylation of the CG context should be regenerated. The conditional CG\_DM\*Cu interaction is not valid, starting from 23.5 to 24.5 days of the *in vitro* anther cultures (Table S8).

**Fig. S6** Conditional effect of the focal predictor (Model 3). GP100Ant – green plants per 100 spikes, CG\_DMV – demethylation of the CG contexts. Variables; Ag+ – W, Time – Z



Moderation of GPs due to the demethylation of the CG contexts moderated by Ag+ conditional on the time (Table S2, Analysis F) shows that the shorter the time of *in vitro* anther tissue cultures containing Ag+ at the highest concentration should result in the highest number of GPs with the minimum demethylation of the CG context. Under a long time of tissue culture conditions and the highest Ag+ ion concentration, some regenerants may also be regenerated. If evaluated, they should exhibit the highest level of the CG sequence DNA context demethylation. The conditional CG\_DM\*Ag interaction is not valid, starting from 30.5 to 32.9 days of in vitro anther cultures (Table S9).

**Fig. S7** Conditional effect of the focal predictor (Model 3). GP100Ant – green plants per 100 anthers, CXG\_DM – demethylation of the CXG contexts. Variables: Cu2+ – W, Time – Z



Moderation of the GPs due to the demethylation of the CXG contexts moderated by Cu2+ conditional on the time (Table S2, Analysis G) shows that a long time of tissue cultures containing Cu2+ at the lowest concentrations should result in the increased number of green regenerants. Such regenerants should have the lowest level of the CXG sequence context DNA demethylation. Increasing Cu2+ concentration and extending the time of *in vitro* anther cultures prone demethylation of the CXG sequences and result in the highest number of the GPs. The conditional CXG\_DM\*Cu interaction is not valid, starting from 23.2 to 24 days of the in vitro anther cultures (Table S10).

**Fig. S8** Conditional effect of the focal predictor. GP100Ant – green plants per 100 anthers, CXG\_DM – demethylation of the CXG contexts. Variables: Ag+ – W, Time – Z



Moderation of GPs due to the demethylation of the CXG contexts moderated by Ag+ conditional on time *in vitro* anther tissue cultures (Table S2, Analysis H) shows that short time of in vitro tissue cultures containing Ag+ at the highest concentrations should result in the increased number of green regenerants with the lowest demethylation level of the CXG context. Increasing the time of *in vitro* anther tissue cultures under the same Ag+ concentration level should lead towards CXG context demethylation and reduction of the number of GPs. The conditional CXG\_DM\*Ag interaction is not valid, starting from 29.6 to 30.8 days of *in vitro* anther cultures (Table S11).