**Supporting Information**

Table S1 Number of spermatozoa incorporated into eggs of *P*. *lividus* at different Na+ concentrations

|  |  |  |  |
| --- | --- | --- | --- |
| Concentration of Na+ in ASW | N° of polyspermic eggs | Eggs incorporating 2 spermatozoa (*n*) | Eggs incorporating 3 spermatozoa (*n*) |
| 575 mM Na+ | 2/60 | 2/60 | 0/60 |
| 490 mM Na+ | 3/60 | 3/60 | 0/60 |
| 360 mM Na+ | 2/60 | 2/60 | 1/60 |
| 120 mM Na+ | 8/60 | 8/60 | 1/60 |
| 50 mM Na+ | 7/60 | 7/60 | 1/60 |

Table S2 Alteration of Ca2+ release dynamics in *P*. *lividus* sea urchin eggs fertilized in Na+ depletion

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | Time lapse from sperm addition to first response | Cortical flash occurrence | Cortical flash amplitude | Latent period | Ca2+ peak | Traverse time |
| 575 mM Na+ | 32.6 ± 14.0 s (n = 18) | 18/22 | 0.059 ± 0.02 RFU | 8.1 ± 4.1 s | 0.327 ± 0.048 RFU | 23.0 ± 2.3 s |
| 360 mM Na+ | 58.8 ± 55.9 s (n = 18) | 18/18 | 0.032 ± 0.01 RFU\*\* | 6.4 ± 0.6 s | 0.255 ± 0.001 RFU\*\* | 22.6 ± 1.4 s |
| 120 mM Na+ | 202.0 ± 102.5 s (n = 18) | 18/18 | 0.035 ± 0.01 RFU\*\* | 7.0 ± 1.3 s | 0.248 ± 0.003 RFU\*\* | 22.7 ± 2.2 s |
| 50 mM Na+ | 308.5 ± 201.4 s (n = 17)\* | 17/17 | 0.032 ± 0.01 RFU\*\* | 5.3 ± 0.5 s | 0.238 ± 0.002 RFU\* | 20.3 ± 1.1 s |
| One-way ANOVA | *P* < 0.01 |  | *P* < 0.01 | n.s. | *P* < 0.01 | n.s. |

Note: Non-significant difference (n.s.). Values statistically significant in comparison with the control (575 mM Na+): \**P* < 0.01, \*\**P* < 0.05 (post hoc analysis).