Supplementary Table 1. Ambiguity in deuterostome and vertebrate sequence reconstructions. Sites with amino acid probabilities >0.1 are shown.

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| --- | --- | --- | --- |
| **Site** | **UrbD** |  |  |
| **4** | R(0.779) | K(0.213) |  |
| **11** | I(0.522) | V(0.478) |  |
| **21** | D(0.836) | E(0.163) |  |
| **84** | S(0.695) | A(0.301) |  |
| **86** | K(0.419) | T(0.344) |  |
| **90** | I(0.686) | V(0.311) |  |
|  |  |  |  |
|  |  |  |  |
| **Site** | **Urb V** |  |  |
| **84** | A(0.701) | S(0.297) |  |
| **90** | I(0.625) | V(0.373) |  |
|  |  |  |  |
|  |  |  |  |
| **Site** | **Urb Va** |  |  |
| **3** | P(0.372) | S(0.279) | T(0.189) |
| **45** | S(0.573) | N(0.255) | T(0.169) |
| **60** | S(0.872) | C(0.109) |  |
| **62** | A(0.616) | S(0.383) |  |
| **86** | S(0.444) | A(0.369) | T(0.170) |
| **98** | F(0.852) | Y(0.147) |  |
|  |  |  |  |
| **Site** | **Urb Vb** |  |  |
| **14** | V(0.585) | L(0.274) | I(0.116) |
| **76** | N(0.855) | G(0.113) |  |
| **90** | V(0.673) | I(0.307) |  |