**Table S1: Predicted relationships between hormones, hormonally-regulated life history stages, and host defences**

T: testosterone; PROG: progesterone; CORT: corticosterone; PRL: prolactin; MT: mesotocin; AR: androgen receptor; ER: estrogen receptor; GR: glucocorticoid receptor; AROM: aromatase.

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| **STAGE** | **HOST DEFENSE** | **FUNCTIONAL TRAIT** | **GENERAL HYPOTHESIS** | **MECHANISTIC HYPOTHESIS** | **PREDICTIONS** |
| Front-line | Nest defence against parasites to reduce the probability of successful parasitism | Vigilance | Hormones mediate vigilance against brood parasites | CORT increases vigilance behaviour | Increased CORT in response to observing a brood parasite |
|  |  |  |  |  | Only host species show increase in CORT in response to observing a brood parasite compared to non-host species |
|  |  |  |  |  | Individuals with higher CORT have lower parasitism rates |
|  |  |  |  | T decreases vigilance | Individuals with higher T have higher parasitism rates |
| Front-line | Nest defence against parasites to reduce the probability of successful parasitism | Aggressive behaviour | Hormones mediate aggression towards brood parasites | T, PROG mediate aggression towards brood parasites | Increased T levels or decreased PROG levels in response to brood parasites compared to non-parasitic heterospecific intruders |
|  |  |  |  |  | Individuals with higher baseline T or decreased PROG levels more aggressive towards brood parasites |
|  |  |  |  |  | Individuals with higher expression of ER, AR, and/or AROM (or lower PROG receptors) in the brain more aggressive towards brood parasites |
|  |  |  |  |  | Individuals or species with higher baseline T more likely to eject eggs or make recognition errors |
|  |  |  |  |  | Individuals or species with lower aggression more likely to be acceptors of parasitic eggs |
|  |  |  |  |  | Individuals that are more aggressive towards brood parasites are worse parents |
|  |  |  |  |  | Individuals with higher T, or lower PROG, have lower parasitism rates |
| Egg- and nestling-stage | Parasitic egg or nestling rejection | Maternal behaviour | Attachment to eggs, nests, and offspring is mediated by hormones | PRL, MT mediate attachment to eggs, nests, and offspring | Drop in PRL, MT levels results in nest abandonment or egg (or chick) ejection |
|  |  |  |  |  | Individuals that have higher PRL or MT levels (or decrease PRL or MT less in response to brood parasitic stimuli) are less likely to abandon nests or eject their own or parasitic eggs/chicks |
|  |  |  |  |  | Nest abandonment and egg/chick rejection is less likely to occur during periods when PRL levels are highest |
|  |  |  |  |  | Individuals and species that have higher expression of PRL or MT receptors in the hypothalamus are less likely to abandon nests or eject eggs/nestlings |
|  |  |  |  |  | Recognition of parasitic nestlings by hosts may result in lower PRL or MT levels, resulting in lower provisioning rates per capita |
|  |  |  |  |  |  |
|  |  |  | Attachment to eggs, nests, and offspring is mediated by hormones | T and CORT down-regulate parental behaviour | Individuals with higher T or higher baseline or stress-induced CORT levels more likely to abandon parasitized nests or eject parasitic nestlings or eggs |
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| Egg- and nestling-stage | Host nestling competitive ability | Maternal effects/  Offspring behaviour | Maternally controlled yolk composition affects the competitive ability of offspring | T and CORT increases host offspring ability to compete with a parasitic nestling | Females from frequently parasitized species deposit higher levels of T or CORT in their eggs compared to less frequently parasitized species |
|  |  |  |  |  | Embryos of frequently parasitized species express higher levels of ARs, ERs, GRs, or aromatase in their brains |
|  |  |  |  |  | Females may deposit more T or CORT in egg yolks if she perceives but does not eject a parasite egg. |
|  |  |  |  |  | Females may deposit more T or CORT in yolks in response to visual cues from adult brood parasites that they encounter in the vicinity of their nests |
|  |  |  | Maternally controlled yolk composition affects the competitive ability of offspring | CORT decreases host offspring ability to compete with parasitic nestling | Encounter with parasite decreases CORT levels |
|  |  |  |  |  | Females lower CORT level in the egg yolks if she perceives but does not eject a parasite egg |
|  |  |  |  |  |  |
|  |  | Offspring behaviour | Hormones affect the competitive ability of host offspring | T and CORT increase host offspring ability to compete with a parasitic nestling | Presence of parasitic nestling(s) increase T and CORT levels in host offspring |