

ELECTRONIC SUPPLEMENTARY MATERIAL

2 *Hormone implantation*

We implanted T-treated birds (10 males, 7 females) with a 10 mm length of Silastic tubing filled with crystalline testosterone that was sealed at both ends with 1 mm Silastic adhesive (see McGraw *et al.* 2006 for more details). Such a treatment raises T to high but still physiologically relevant titers (McGraw *et al.* 2006). Sham-controls (8 males, 10 females) received an empty implant that was also sealed with glue at both ends. Implants remained in all birds for 8 weeks; when removed at the end of the study, T-containing capsules were 50-90% empty, indicating that no bird ever ran out of supplementary T.

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Statistical analyses

12 Because we were also interested in whether the carotenoid pools available to each bird in blood might be associated with the direction and magnitude of the effect of testosterone on immunity in each sex, we used the change in total plasma carotenoid levels that occurred while we administered our 24 hr. immune challenge as a covariate in our analysis (and included all relevant interaction terms). In previous studies, we have shown that carotenoid pools decline during such challenges (McGraw & Ardia 2003, 2005), implicating an active role of carotenoid allocation to immune function (see Faivre *et al.* 2003 and Peters *et al.* 2004 for evidence in other birds).

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Discussion of patterns of T-induced immunosuppression in colorful birds

22 The four species with carotenoid-based coloration that show T-induced immunosuppression are: the house finch (Duckworth *et al.* 2001), European starling (*Sturnus vulgaris*; Duffy *et al.* 2000),

24 greenfinch (*Carduelis chloris*; Lindstrom *et al.* 2001), and common moorhen (*Gallinula*
25 *chloropus*; Eens *et al.* 2000); only in red-winged blackbirds (*Agelaius phoeniceus*) has no
26 immunodepressive effect of T been detected (Hasselquist *et al.* 1999).

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