Dr. Robert Perlman,
Editor *Perspectives in Biology and Medicine*

Dear editor,

In their 2007 paper "What many Transgender Activists Don't Want You to Know: and why you should know it anyway", Bailey and Triea discuss the interesting idea of Ray Blanchard that there may be two distinct subtypes of male-to-female transsexual persons. They argue that this idea is opposed to the "brain sex" theory, which they see as supported by our studies on the BSTc. What is more, not only do they criticize the good citation scores of our papers (Zhou et al., 1995; Kruijver et al., 2000) on the reversal of a sex difference in a brain structure in transsexual people, they also slate our interpretation of the data. They state: *"The most critical problem is that neither study includes the necessary hormonal controls to exclude the possibility that the feminization of the BSTc in MtF's was due to hormonal treatment, especially estrogen therapy, received for transsexualism. Recent research shows that the volume of the hypothalamus is highly dependent on such hormonal treatment, with smaller volumes associated with estrogenic treatment (Hulshoff Pol et al., 2006). We concur with Lawrence (2007b) that this is the most likely explanation of the Zhou et al. (1995) and Kruijver et al. (2000) findings"*. In contrast to what Bailey and Triea suggest, we did have observations in our studies showing that the BSTc volume of patients with abnormal hormone levels concurred with their genetic sex and thus did not support what Bailey and Triea call "the most likely explanation". These observations may, however, not have been absolutely convincing because of the relatively small numbers of patients involved. However, if one makes the effort of comparing the data of our two studies, it will be clear that such controls are not essential at all to prove

that the feminization of the BSTc in MtFs cannot simply be due to hormonal treatment, and that Bailey and Triea make a serious mistake here.

Hulshoff Pol et al. (2006) used structural MRI in transsexual people and concluded indeed that hormone therapy may change the volume of the brain structures. However, the statement of Bailey and Triea that "*Recent research shows that the volume of the hypothalamus is highly dependent on such hormonal treatment"* is *highly* misleading: The volume of the hypothalamus in transsexual women changed less than 6% and did not change at all in FM transsexual men (Hulshoff Pol et al., 2006). On the basis of the Zhou et al. (1995) paper only, and neglecting our data on the patients with abnormal hormone levels that did not point to that possibility at all, one might still argue that hormone treatment might have caused the sex-reversed BSTc volume in transsexual people. That was one of the reasons why our first study was followed up by the Kruijver et al. paper of 2000, where we did not only determine the volume of the BSTc, but also the total number of somatostatin neurons. It is basic morphometric knowledge that the total cell number in a brain structure is independent of pre- or postmortem changes in the volume of that structure. Kruijver et al. (2000) found that BSTc neuron number was even more sexually dimorphic than BSTc volume. The average BSTc cell number in males was 71% higher than in females. Once again, the transsexual women showed a sex-reversed pattern, with an average BSTc cell number in the female range. In addition, it should be noted that the BSTc neuron number was also in the female range in an untreated gender dysphoric male and was in the male range in a transsexual man, again showing that swelling or shrinkage due to hormone treatment does not explain the data. Since swelling or shrinkage of the tissue could not have played a role in the total BSTc neuron counts

(Kruijver et al., 2000), Bailey and Triea's "most likely explanation of the Zhou et al., 1995 and the Kruijver et al. 2000 findings", should be dismissed out of hand. We fail to understand how it is possible that these authors did not reach this conclusion. Maybe they just did not want to know?

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References

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