SUPPLMENTARY MATERIAL

In two behavioral tasks we measured participants' willingness to forego money in order to give it to their partner (*monetary sharing*) and their willingness to spend time helping their partner complete an effortful task (*time sharing)*. Emerging research suggests that individuals display a "cooperative phenotype," such that they stably choose to act prosocially across different contexts (Peysakhovich, Nowak, & Rand, 2014). This suggests that individuals who inform most may also be more prosocial in other domains. Here we report preliminary analyses examining relationships between informing and other indices of prosociality. Crucially, we note that these analyses are underpowered to detect weak individual difference relationships, and as such resulting null findings should be interpreted with caution. This sample size provides for a conservative test of the relation between informing and measures of prosociality and vicarious reward, with a power of .80 to detect correlations with a large effect size, and power of .54 to detect an estimated correlation of $r = .41$, the relation between disparate measures of cooperation described in prior work (Peysakhovich, Nowak, & Rand, 2014).

METHODS

After completing the Choice Task, which assessed participants' willingness to share information with their partner, participants completed two behavioral tasks designed to measure their willingness to share money and time, respectively, with their study partner.

Monetary Sharing task. Participants made a series of choices about how to divide money between themselves and their study partner. For each of 13 questions in this survey, participants were given an option to take money for themselves or give money to their study partner. For example, they could choose between earning $0.88 themselves or giving $1.06 to their partner. A self other ratio for each trial was calculated based on these two amounts (i.e., .88/1.06 = .3). Monetary values varied across trials, as did the option for who could receive the larger amount. Participants were told that the experimenters would randomly implement one of their choices. Monetary sharing in this task was calculated as the self/other ratio for which participants were indifferent in choosing the monetary reward for self or other. That is, we calculated the ratio above which participants would chose to take money themselves, and below which participants would chose to give their partner money.

Time Sharing task. Participants were given an opportunity to spend time to help their partner (Waytz, Zaki, & Mitchell, 2012). After completing all other tasks, participants were told that they had finished the study, and were free to leave. They were also then told that that while they were doing their tasks, their partner had been working on difficult problem-solving questions and that they could reduce their partner's workload by completing some of the questions for him/her. Participants were then handed LSAT questions and told that they could complete as few or as many as they wished, including zero. We then timed how long participants spent working on these problems (up to 45 minutes).

RESULTS

Participants chose to share both time and money with their study partners. Participants on average gave 19.97 minutes (se = 3.71) of their time to answer LSAT questions for their study partner, significantly greater than 0 minutes, $t(20) = 5.37$, $p < .001$, $d = 1.20$. Participants also shared a significant proportion of their potential monetary earnings with their partner in the monetary sharing task. In this task, egalitarian participants should allot equivalent monetary rewards for themselves and for their partner, earning a self/other ratio of 1; selfish participants should maximize their own earnings and share nothing with their partner, earning a ratio of 0. Our participants had, on average, a ratio of .52 (se = .06), significantly different from both pure selfishness, $t(18) = 8.53$, $p < .001$, $d = 2.01$, and pure egalitarianism, $t(18) = -7.78$, $p < .001$, $d = 1.83$ (ratio's for 2 participants could not be calculated).

We conducted correlational analyses across our multiple behavioral and neuroimaging measures. Prosocial behavior was assessed by performance on the Time Sharing and Monetary Sharing tasks; vicarious reward was assessed as the striatal response to observing another's success (*correct* > *incorrect*) during the Outcome Observation task. The behavioral measure of informing's value was defined as the PSE from the information sharing choice task for the 19 subjects for whom PSE could be calculated; the neural measure of informing's value was defined as neural responses during the Information sharing task *(inform* > *withhold)* in both the left and right NAcc defined using both functional and anatomical means. These analyses were conducted in an exploratory mode, as the current sample size only provides sufficient power to detect correlations with large effect sizes; we report them here both for the sake of completeness and in the hope of motivating future research.

First, generosity in the monetary sharing task was marginally correlated with generosity in the time sharing task, $r(19) = .46$, $p = .06$, 95% CI [.04, .74]. Second, the behavioral measure of informing's value correlated with some neural measures of informing's value: informing behavior was significantly correlated with neural responses to informing in the right NAcc—defined functionally defined using the *win > neutral* during the feedback period, $r(17) = .54$, $p = .02$**,** 95% CI [.11, .80], and defined anatomically, $r(17) = .59$, $p = .01$, 95% CI [.19, .82]. However, the left NAcc, nor the right NAcc defined during the anticipation period predicted informing behavior on the choice task (L NAcc, Hammers, *et al*: $r(17) = .20$, $p = .34$, 95% CI [-.28, .60]; L NAcc, anticipatory gain, $r(17) = .15$, $p = .46$, 95% CI [-.33, .57]; L NAcc feedback gain: $r(17) = .26$, $p = .22$, 95% CI [-.22, .64]; L NAcc *inform > withhold*: $r(17) = .11$, $p = .65$, 95% CI [-.36 , .54]; R NAcc, anticipatory gain, $r(17) = .29$, $p = .20$, 95% CI [-.19, .66]).

Finally, levels of monetary sharing did not correlate with any of the neural measures of information sharing (all p's > .45), or with behavior during the Informing Choice task, $r(16) = .19$, $p = .45$, 95% CI [-.29, .59]. Levels of time sharing task did not correlate with behavior during the Informing Choice task, $r(17) = .09$, $p = .71$, 95% CI [-.38, .52], nor with any of neural responses to informing, with the exception of a marginal correlation between time sharing and neural responses during informing in the R NAcc, defined during the anticipation period of the MID which approached significance, $r(19) = .40$, $p = .08$, 95% CI [-.04, .71]. Finally, neural activity during the Outcome Observation task, in either the Caudate or NAcc, did not correlate with NAcc activity during the Informing Task nor with behavior on the Informing Choice task (all ps > .30).

We emphasize that these analyses were ancillary parts of the project and were underpowered to detect anything less than strong correlations. As such, they should be considered preliminary. We include them here both to provide a full description of the experiment, and because they provide suggestive (if weak) evidence that behavioral measures of informing may correlate with some neural reward activity related to informing. On the other hand, behavioral measures of time sharing and monetary sharing did not as strongly correlate with either behavioral or neural measures of informing. Because these correlation analyses were underpowered, we cannot draw strong inferences about whether or not a reliable relation exists between informing and prosociality that was not simply not detected in this study.