Participants and Demographics

Sex. Four hundred fifteen participants (48.3%) were male; 444 (51.7%) were female.

Age. Twenty participants who reported ages below 18 or above 100 were excluded from analyses with age. The remaining ages ranged from 18 to 91, with a mean of 46.9 (*SD* = 16.5).

Race. Seven hundred fifty-eight participants (88.2%) were Caucasian, 49 (5.7%) were Black, 7 (.8%) were Hispanic/Latino, 41 (4.8%) were East Asian or Pacific Islander, 12 (1.4%) were Southeast Asian, and 14 (1.6%) were Native American. Each participant was allowed to select more than one ethnicity.

Sexual orientation. Seven hundred fifty-nine participants (88.4%) described themselves as heterosexual; 21 (2.4%) as gay or lesbian; 32 (3.7%) as bisexual. Forty-seven (5.5%) declined to answer.

Income. Participants were asked to report their yearly pre-tax household income using the ranges *less than $25,000* (209; 24.3%); *$25,000-$50,000* (233; 27.1%); *$50,001-$75,000* (164; 19.1%); *$75,001-$100,000* (87; 10.1%); and *greater than $100,000* (166; 19.3%).

Education. We asked participants to report the highest level of education they had completed. Fourteen participants (1.6%) did not complete high school; 213 (24.8%) held a high school diploma or GED; 75 (8.7%) had completed junior college (associate degree) or a technical school; 251 (29.2%) had completed some college; 175 (20.4%) held a bachelor's degree; 26 (3%) had completed some graduate school; and 105 (12.2%) held an advanced degree (either masters or doctorate).

Religion. One hundred two participants (11.9%) described their religious affiliation as atheist/agnostic, 226 (26.3%) as Catholic, 294 (34.2%) as Protestant, 15 (1.7%) as Judaism, 4 (.5%) as Islam, 6 (.7%) as Hinduism, 8 (.9%) as Buddhism, and 204 (23.7%) as "Other."

Politics. One hundred ninety-nine participants (23.2%) described themselves as Republicans, 275 (32%) as Democrats, 225 (26.2%) as independents, and 32 (3.7%) as members of another party. One hundred twenty-eight (14.9%) selected "don't know/no preference." We also asked participants whether they usually thought of themselves as "liberal, moderate, conservative, or something else." One hundred seventy-seven chose "don't know/not political" (112; 13%), "libertarian" (20; 2.3%), or "other" (45; 5.2%). The remaining 682 participants placed themselves on a seven-point scale anchored by "Very liberal" and "Very conservative." The mean score (M = 4.08; SD = 1.77) was very close to the scale midpoint of 4, labeled "Moderate." We also asked participants to place themselves on the same scale (except that this scale did not contain the "libertarian" option) separately for "social issues" (N = 693; M = 3.91; SD = 1.86) and "economic issues" (N = 695, M = 4.32, SD = 1.84).

Location. As a proxy for state of residence, we looked up our participants' locations using their IP addresses (using the geolocation service http://www.telize.com/geoip). Twenty-three IP addresses could not be mapped; results for the remaining participants are displayed below.

Table S1

Participant locations

State	Number of Participants	Percentage of Participants
Alabama	13	1.6%
Alaska	3	0.4%
Arizona	12	1.4%
Arkansas	7	0.8%
California	52	6.2%
Colorado	14	1.7%
Connecticut	14	1.7%
Delaware	2	0.2%
District of Columbia	3	0.4%
Florida	69	8.3%
Georgia	25	3.0%

Hawaii	2	0.2%
Idaho	5	0.6%
Illinois	27	3.2%
Indiana	36	4.3%
Iowa	6	0.7%
Kansas	7	0.8%
Kentucky	17	2.0%
Louisiana	6	0.7%
Maine	8	1.0%
Maryland	11	1.3%
Massachusetts	23	2.8%
Michigan	31	3.7%
Minnesota	10	1.2%
Mississippi	4	0.5%
Missouri	29	3.5%
Montana	3	0.4%
Nebraska	9	1.1%
Nevada	9	1.1%
New Hampshire	3	0.4%
New Jersey	24	2.9%
New Mexico	4	0.5%
New York	55	6.6%
North Carolina	33	3.9%
North Dakota	1	0.1%
Ohio	49	5.9%
Oklahoma	11	1.3%
Oregon	17	2.0%
Pennsylvania	43	5.1%
Rhode Island	3	0.4%
South Carolina	8	1.0%
South Dakota	2	0.2%
Tennessee	15	1.8%
Texas	44	5.3%
Utah	9	1.1%
Vermont	2	0.2%
Virginia	17	2.0%
Washington	10	1.2%
West Virginia	6	0.7%
Wisconsin	20	2.4%
Wyoming	3	0.4%

Materials and Methods

Absolute GM Opposition

We adapted these items from Baron and Spranca (1997). Participants were asked four agree/disagree questions about "genetically engineering plants and animals." These were: 1) "I do not oppose this"; 2) "This should be prohibited no matter how great the benefits and minor the risks from allowing it"; 3) "It is equally wrong to allow some of this to happen as to allow twice as much to happen. The amount doesn't matter"; and 4) "This would be wrong even in a country where everyone thought it was not wrong."

Control absolute opposition

We also asked participants the same four absolute opposition questions regarding "fishing in a way that leads to the death of dolphins."

GM scenarios

Participants read four scenarios about people either intentionally or unintentionally consuming fictitious genetically modified foods:

1. *Mary eats tomatoes that have been genetically modified. She knows [does not know] the tomatoes have been genetically modified. Scientists have inserted genes in them so that they stay fresh longer.*

2. *Laura is at a restaurant for lunch, and she eats a tuna fish sandwich. She knows [does not know] that the tuna she is eating has been genetically modified. Scientists have inserted genes in them so that they grow more rapidly.*

3. *Tim knows [does not know] the apples at a local cafe have been genetically modified. He purchases and eats an apple from the cafe. Scientists have inserted genes in these apples so that they stay crisp longer.*

4. *Amanda knows [does not know] that conventional milk comes from genetically modified cows. She purchases a bottle of conventional milk and drinks it. Scientists have inserted genes in the cows so that their milk is less likely to induce allergic reactions.*

For each scenario, each participant was randomly assigned to read about intentional or unintentional consumption. For example, a participant might have read the intentional versions of scenarios 1 and 4 and the unintentional versions of scenario 2 and 3. The effects of intentionality were small and did not substantially affect the main results. For further information about intentionality effects, see supplemental analyses below.

Immediately after reading each scenario, participants were asked about their emotional responses to it. We first asked participants to choose whether they felt primarily disgusted or angry. Participants did so in one of two ways: Half of participants were randomly assigned to always choose between verbal emotion labels; the other half were randomly assigned to always choose a face from one of two sets of anger and disgust facial expressions (a Caucasian or Indian female; pictures were from Rozin, Lowery, Imada, & Haidt (1999)). Participants were asked to select the emotion or face that they thought best matched their emotion/facial expression upon viewing the situation (for verbal and facial expression conditions, respectively). Regardless of whether they chose between words or faces, participants were significantly more likely to choose disgust than anger (full analyses of this measure can be found in the supplemental analyses below). Subsequently, all participants were asked to report how angry and disgusted they felt imagining the situation (on nine-point scales; 1=*Not at all angry/disgusted* to 9=*Extremely angry/disgusted*). The order of these two questions was randomized.

Control scenarios

In order to verify that participants were using the emotion response scales as intended, we included two control scenarios, one expected to primarily evoke disgust and one expected to primarily evoke anger. After reading each scenario, participants completed the emotion measures described above.

Control Anger Scenario: *Sam is fishing in a way that leads to the death of dolphins.*

Control Disgust Scenario: *Josh is a 70 year-old male having sex with a 17 year-old female.*

GM risks, benefits, trust, and regulation

We asked participants to rate the severity of four possible risks of genetically modified food, the promise of four possible benefits of genetically modified food, their trust in five GM-related institutions, and their support for five different regulations restricting genetically modified foods, all on nine-point scales. Risk, benefit, and trust measures were adapted from Siegrist (2000).

Below are some possible negative consequences of GMO technology. How much risk do you think each poses for society? (1="No risk at all" to 9="Extreme risk")

1. *Genes from genetically modified plants spreading to other plants or animals, contaminating the environment*
2. *Genetically modified crops giving big corporations too much power over small farmers*
3. *Genetically modified foods having unknown side-effects, increasing risks of cancer or other diseases for people who consume them*
4. *Genetically modified foods being more toxic or less nutritious, harming people who consume them*

Below are some possible positive consequences of GMO technology. How much benefit do you think each promises for society? (1="Not at consequential" to 9="Extremely consequential")

1. *Genetically modified plants increasing crop yields*
2. *Genetically modified plants requiring less fertilizer and fewer pesticides*
3. *Genetically modified foods being more nutritious for consumers*
4. *Genetic modification increasing animals' milk or meat production*

In general, how much do you trust the following institutions or persons to deal with GMO technology safely and honestly? (1="Not at all" to 9="A great deal")

1. *Food companies*
2. *The U.S. government*
3. *Science*
4. *Scientists and researchers at universities*
5. *Agricultural companies*

In general, do you support the following? (1="Certainly oppose" to 9="Certainly support")

1. *Your government requiring companies to label foods that have been genetically modified, so that consumers can identify them.*
2. *Your government requiring companies to submit every new GM food for strict and thorough testing, which can take years to complete.*
3. *Your government forbidding imports of GM foods from other countries.*
4. *Your government adding extra regulations for companies that produce or sell GM foods.*
5. *Your government forbidding any sale of GM foods within the nation's borders.*

Disgust Scale-Revised (Haidt, McCauley, & Rozin, 1994; Olatunji et al., 2007).

The 25-item DS-R measures individual differences in the propensity to feel disgust. DS scores are stable over time and predict people's willingness to perform actual disgusting actions (Rozin, Haidt, McCauley, Dunlop, & Ashmore, 1999). The DS-R also includes two attention-check questions to detect inattentive or random responding.

Trait Anger

We assessed trait anger using the Anger subscale of the Aggression Questionnaire (Buss & Perry, 1992).

Inclusion of Nature in Self

Participants saw a series of seven pairs of circles, which progressed from barely touching to almost completely overlapping (Aron, Aron, & Smollan, 1992; Schultz, 2001). The left circle was labeled "Self" and the right labeled "Nature", and participants were instructed to "select the picture that best describes your relationship with nature."

Connectedness to Nature (CNS)

The CNS is a widely-used measure of the extent to which people feel a connection to the natural world (e.g., "I often feel a sense of oneness with the natural world around me"). Higher scores on the CNS are strongly associated with environmentalist attitudes and behavior (Mayer & Frantz, 2004).

Demographics

Demographics included gender, age, income, religiosity, and political orientation.

Order and randomization

Half of participants were randomly assigned to first see the six scenarios (four genetically modified foods and two control) in random order; then the remaining measures. The other half completed the two blocks in the reverse order. Measure order was randomized, with each

appearing on a separate page except for the risks, benefits, trust, and regulation questions (which appeared on the same page), and inclusion of nature in self (which was always presented on the last page, with the demographics). For all measures except disgust sensitivity and moral opposition, item order was randomized. All participants completed the demographics and inclusion of nature in self last, preceded by a short unrelated scale assessing lay views of obesity. Item order was randomized for all measures except disgust sensitivity and absolute opposition. Effects were consistent across order and we therefore collapse across it when reporting the results.

Supplemental Analyses

Alternative operationalizations of absolute opposition

We define absolute GM opposition using the "should be prohibited no matter how great the benefits and minor the risks from allowing it" question described in the Materials and Methods above. Descriptive statistics and regression models predicting absolute opposition were very similar using the other two questions (i.e., either defining absolutism as being quantity insensitive and agreeing to question 3 or as universalizing and agreeing to question 4). Using the quantity insensitivity question, 32.6% of respondents were supporters, 15.8% were non-absolutist opponents, and 51.6% were absolutist GM opponents (out of 764 participants, where ninety-five participants were excluded due to inconsistent responses). Using the universality question, 34.2% were supporters, 15.5% were non-absolutist opponents, and 50.3% were absolutist GM opponents (out of 783 participants, where seventy-six were excluded due to inconsistent responses).

For the analyses reported in the main text, all significant results remained significant and all patterns of means remained the same when using either of the alternate classification

schemes, with one exception. Using the universalist classification (i.e., "No" to question 1 and "Yes" to question 4), the difference between opponents' and supporters' frequency of choosing a disgust face for scenario 4 was marginal, whereas it was significant using the other classification schemes.

Disgust and absolute opposition

The relationships between disgust and absolutist opposition were robust to controlling for perceived risks and benefits of genetically modified foods, trust in GM-related institutions, demographic and individual difference variables. We conducted two multinomial logistic regressions with absolutist opponent as the reference category. In the first regression (Table S2), average disgust in response to scenarios, perceived risks and benefits, trust, demographics, and individual differences were entered simultaneously as predictors. In the second regression (Table S3), trait disgust sensitivity, perceived risks and benefits, trust, demographics, and individual differences were entered simultaneously as predictors. In both regressions, all continuous independent variables are standardized to facilitate comparison of regression coefficients.

Table S2

Relationship between state disgust at genetically modified food *consumption and GM opposition.*

Independent Variable	Non-Absolute Opposition (versus Absolute Opposition)			Support (versus Absolute Opposition)		
	Coefficient	Wald	*p*	Coefficient	Wald	*p*
State disgust	-.489	11.891	.001	-1.367	74.955	<.001
Risks	-.303	3.819	.051	-.970	39.284	<.001
Benefits	.131	1.027	.311	.501	11.367	.001
Trust	.049	.147	.702	.344	5.887	.015
Connectedness to Nature	-.408	7.566	.006	-.257	2.601	.107
Inclusion of	.303	4.526	.033	.280	3.694	.055

Nature in Self						
Date of Birth	.132	1.074	.300	-.054	.182	.669
Education	.107	.647	.421	-.113	.688	.407
Political Orientation (7 = most conservative)	-.183	1.938	.164	-.031	.052	.820
Income	.107	.711	.399	.200	2.367	.124
Religiosity	.037	.088	.766	-.051	.158	.691
Gender (1 = female, 0 = male)	-.145	.330	.565	-.399	2.455	.117
Ethnicity, White	1.421	1.201	.273	1.237	.885	.347
Ethnicity, Black	.727	.261	.609	.881	.386	.535
Ethnicity, Hispanic	2.167	1.890	.169	-.446	.054	.817
Ethnicity, East Asian	.563	.171	.679	.768	.325	.569
Ethnicity, Native American	.762	.381	.537	1.166	.840	.359
Ethnicity, Southeast Asian	2.119	1.540	.215	2.705	2.288	.130

Note. A multinomial logistic regression model predicting absolute GM opposition (reference category), non-absolute opposition, and support with disgust reactions from scenarios for $N = 621$ participants is displayed. All independent variables except gender and ethnicity are standardized. Participants who selected a political orientation outside of liberal-conservative spectrum (e.g., "don't know") or who indicated an age outside the range of 18 to 100 years old are excluded.

Table S3

Relationship between trait disgust sensitivity and GM opposition.

Independent Variable	Non-Absolute Opposition (versus Absolute Opposition)			Support (versus Absolute Opposition)		
	Coefficient	Wald	*p*	Coefficient	Wald	*p*
Disgust Sensitivity	-.372	7.645	.006	-.602	20.562	<.001
Risks	-.406	7.202	.007	-1.266	75.618	<.001
Benefits	.169	1.792	.181	.679	23.940	<.001
Trust	.116	.786	.375	.450	11.343	<.001
Connectedness to Nature	-.461	9.628	.002	-.355	5.785	.016

Inclusion of Nature in Self	.262	3.368	.066	.182	1.832	.176
Date of Birth	.138	1.172	.279	-.084	.514	.473
Education	.150	1.292	.256	.055	.189	.664
Political Orientation (7 = most conservative)	-.189	2.067	.151	.001	.000	.991
Income	.067	.283	.595	.096	.634	.426
Religiosity	.033	.073	.787	-.046	.144	.704
Gender (1 = female, 0 = male)	.044	.029	.864	-.033	.018	.893
Ethnicity, White	2.042	2.299	.129	1.589	1.535	.215
Ethnicity, Black	1.255	.738	.390	1.244	.835	.361
Ethnicity, Hispanic	2.581	2.311	.128	.100	.003	.959
Ethnicity, East Asian	1.207	.752	.386	1.198	.814	.367
Ethnicity, Native American	.645	.285	.594	.869	.579	.447
Ethnicity, Southeast Asian	2.835	2.525	.112	2.637	2.310	.129

Note. A multinomial logistic regression model predicting absolute GM opposition (reference category), non-absolute opposition, and support with trait disgust sensitivity for $N = 621$ participants is displayed. All independent variables except gender and ethnicity are standardized. Participants who selected a political orientation outside of liberal-conservative spectrum (e.g., "don't know") or who indicated an age outside the range of 18 to 100 years old are excluded.

Principal Components Analysis

In order to assess whether risk, benefit, and trust are differentiated by our participants, we used a principal components analysis with a varimax rotation. Three components emerged using the Kaiser criterion, explaining 75.2% of the variance. Below, the loadings of each item are displayed.

Table S4

Principal components analysis of risk, benefit, and trust items.

	Factor 1	Factor 2	Factor 3
Risk Item 1	-.090	-.023	**.885**
Risk Item 2	-.054	-.041	**.907**
Risk Item 3	-.085	.023	**.817**
Risk Item 4	-.060	-.036	**.919**
Benefit Item 1	.123	**.907**	-.007
Benefit Item 2	.121	**.909**	-.031
Benefit Item 3	.141	**.882**	-.025
Benefit Item 4	.110	**.866**	-.012
Trust Item 1	**.823**	.141	.027
Trust Item 2	**.824**	.076	-.150
Trust Item 3	**.805**	.083	-.210
Trust Item 4	**.754**	.077	-.007
Trust Item 5	**.825**	.166	-.019

Note. Results of principal components analysis with a varimax rotation for risk, benefit, and trust are shown. Items that load above .3 are in bold.

Correlation Matrix

To further assess whether variables were highly correlated, as might happen if predictor variables capture the same underlying latent construct, we examined the zero-order correlation matrix below.

Table S5

Correlation matrix.

	Desire for Regulation	Disgust Sensitivity	GM Scenarios, Disgust	GM Scenarios, Anger	Risks	Benefits	Trust	Connectedness to Nature	Inclusion of Nature in Self	Gender	Date of Birth	Education	Politics	Income	Religiosity	Ethnicity, White	Ethnicity, Black	Ethnicity, Hispanic	Ethnicity, East Asian	Ethnicity, Native American	Ethnicity, Southeast Asian
Desire for Regulation	1	.205**	.361**	.352**	.601**	-.074*	-.127**	.251**	.090**	.165**	-.074*	-.074*	-.109**	-.093**	.092**	-0.012	-0.003	0.022	0.048	-0.014	-0.006

Education	Date of Birth	Gender	Inclusion of Nature in Self	Connectedness to Nature	Trust	Benefits	Risks	GM Scenarios, Anger	GM Scenarios, Disgust	Disgust Sensitivity
-.074*	-.074*	.165**	.090**	.251**	-.127**	-.074*	.601**	.352**	.361**	.205**
-.146**	.126**	.355**	-.146**	-0.029	0.043	-0.01	.251**	.279**	.334**	1
-.176**	.063	.200**	.100**	.185**	-.174**	-.196**	.439**	.914**	1	.334**
-.150**	.018	.179**	.099**	.166**	-.185**	-.180**	.431**	1	.914**	.279**
-.096**	.024	.228**	.118**	.273**	-.170**	-0.053	1	.431**	.439**	.251**
0.036	-.034	-0.045	-.018	0.031	.269**	1	-0.053	-.180**	-.196**	-0.01
0.013	.075*	-0.019	-.004	0.052	1	.269**	-.170**	-.185**	-.174**	0.043
-0.037	.019	.124**	.454**	1	0.052	0.031	.273**	.166**	.185**	-0.029
.032	-.071*	-.045	1	.454**	-.004	-.018	.118**	.099**	.100**	-.146**
-.162**	.178**	1	-.045	.124**	-0.019	-0.045	.228**	.179**	.200**	.355**
-.026	1	.178**	-.071*	.019	.075*	-.034	.024	.018	.063	.126**
1	-.026	-.162**	.032	-0.037	0.013	0.036	-.096**	-.150**	-.176**	-.146**
-0.022	-.158**	-.095*	-.175**	-.296**	-.078*	0.066	-.111**	-.085*	-.090*	-0.064
.384**	-.057	-.168**	-.047	-.118**	0.005	0.013	-.116**	-.059	-.096**	-.124**
0.009	-.127**	.086*	.017	-.072*	-0.015	-0.056	.082*	.082*	.072*	.090**
-.078*	-.163**	-0.006	.081*	-0.049	-.117**	-0.01	0.021	-.038	-.068*	-.118**
-0.028	.064	0.027	-.099**	-0.049	.068*	-0.052	-0.026	.028	0.062	.114**
-0.048	.006	-.094**	-.021	0.002	-0.035	0.042	-0.019	-.040	-0.042	-0.053
.164**	.115**	0.009	-.011	.075*	.081*	.090**	0.037	.031	0.04	0.059
0.023	.016	-0.06	-.002	0.045	-0.029	-0.011	-.076*	-.032	-0.019	-.074*
0.006	.063	-0.044	-.022	0.025	0.012	0	-0.002	.071*	0.059	0.029

Ethnicity, Southeast Asian	Ethnicity, Native American	Ethnicity, East Asian	Ethnicity, Hispanic	Ethnicity, Black	Ethnicity, White	Religiosity	Income	Politics
-0.006	-0.014	0.048	0.022	-0.003	-0.012	.092**	-.093**	-.109**
0.029	-.074*	0.059	-0.053	.114**	-.118**	.090**	-.124**	-0.064
0.059	-0.019	0.04	-0.042	0.062	-.068*	.072*	-.096**	-.090*
.071*	-.032	.031	-.040	.028	-.038	.082*	-.059	-.085*
-0.002	-.076*	0.037	-0.019	-0.026	0.021	.082*	-.116**	-.111**
0	-0.011	.090**	0.042	-0.052	-0.01	-0.056	0.013	0.066
0.012	-0.029	.081*	-0.035	.068*	-.117**	-0.015	0.005	-.078*
0.025	0.045	.075*	0.002	-0.049	-0.049	-.072*	-.118**	-.296**
-.022	-.002	-.011	-.021	-.099**	.081*	.017	-.047	-.175**
-0.044	-0.06	0.009	-.094**	0.027	-0.006	.086*	-.168**	-.095*
.063	.016	.115**	.006	.064	-.163**	-.127**	-.057	-.158**
0.006	0.023	.164**	-0.048	-0.028	-.078*	0.009	.384**	-0.022
-.085*	0.008	-0.037	-0.014	-.146**	.167**	.238**	-0.001	1
0.016	-0.027	.077*	-0.019	-.108**	0.02	-0.035	1	-0.001
-0.039	0.017	-0.057	-0.005	0.06	-0.024	1	-0.035	.238**
-.295**	-.096**	-.529**	-.088*	-.643**	1	-0.024	0.02	.167**
0.013	0.008	-0.032	0.034	1	-.643**	0.06	-.108**	-.146**
.100**	.091**	0.04	1	0.034	-.088*	-0.005	-0.019	-0.014
0.066	0.014	1	0.04	-0.032	-.529**	-0.057	.077*	-0.037
0.063	1	0.014	.091**	0.008	-.096**	0.017	-0.027	0.008
1	0.063	0.066	.100**	0.013	-.295**	-0.039	0.016	-.085*

Note. The correlation matrix among variables is displayed. ** indicates $P < 0.01$, * indicates $P < 0.05$

Path Model

We further examined the relationships between disgust at genetically modified food consumption, disgust sensitivity, risk perceptions, and policy preferences using path modeling.

These observed variables were the same unstandardized composite scores used in the main text, and in the correlation matrix above. Based on research showing that risk perceptions are often affectively based (Finucane, Alhakami, Slovic, & Johnson, 2000), we specified an indirect path from disgust reactions to genetically modified food consumption via risk perceptions. We also specified two paths for disgust sensitivity: one to risk perceptions via disgust reactions to GM, and one directly to risk perceptions. The first path reflects our expectation that more disgust-sensitive individuals would find genetically modified food consumption more disgusting; the second path reflects our expectation that they would also find GM aversive, and thus perceive greater risks, for other reasons—for example, because they find genetically modified organisms unnatural or contaminating. The complete model is shown in Figure S1. We fit this model to the data using the "sem" procedure in Stata 12.0 (Mac OS X) with the default maximum-likelihood estimation procedure. The model fit the data well, as shown by a non-significant test for model lack of fit, $\chi^2(1) = 1.15$, $p = .28$. Other indices also indicated good overall model fit, RMSEA = .013, 95% CI [0.00, .093], SRMR = .007, CFI = 1.00. The complete model, with standardized and unstandardized parameter estimates (as well as 95% confidence intervals for the latter), is shown in Figure S1. All paths shown are significant at $p < .001$, as are all indirect effects (Cohen & Cohen, 1983; Kline, 2011).

Figure S1. Path model showing relationships between disgust sensitivity, disgust at consumption of genetically modified food, GM risk perceptions, and desire to regulate GM. Unstandardized parameter estimates are displayed first; standardized estimates are in parentheses; 95% CIs of the unstandardized estimates are in brackets.

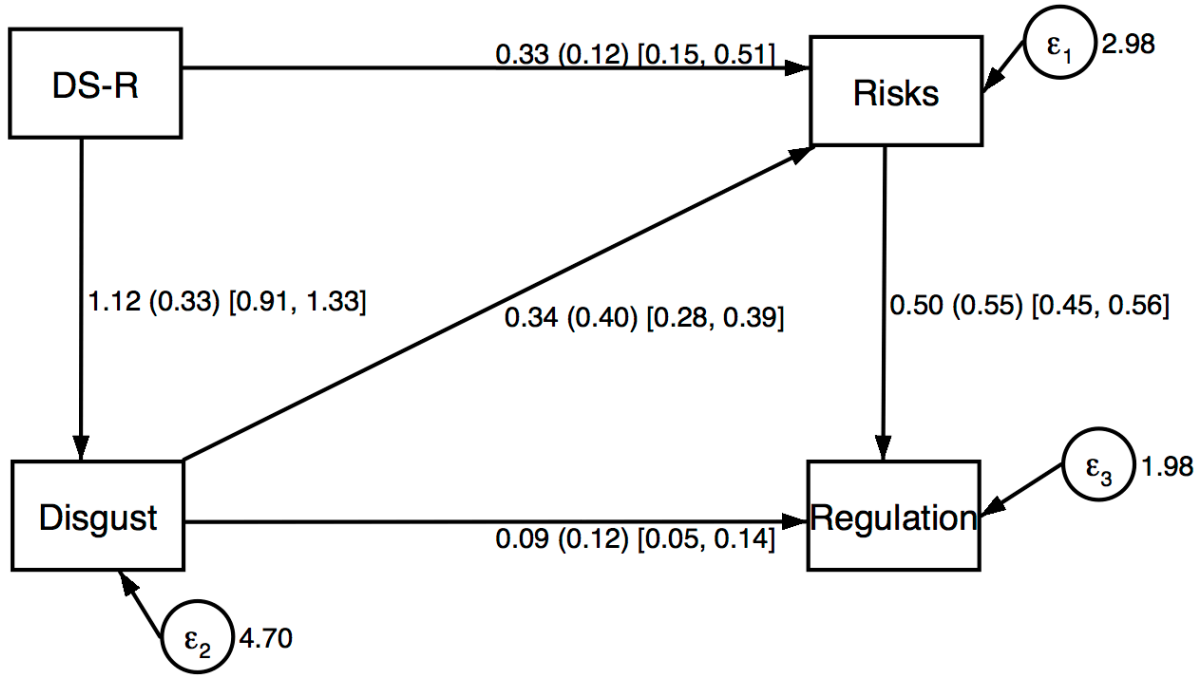


Table S6. Variance-covariance matrix of the observed variables used in the path analysis.

	DS-R (disgust sensitivity)	GM scenarios disgust	Risks	Desire for regulation
DS-R (disgust sensitivity)	.47521			
GM scenarios disgust	.530146	5.30065		
Risks	.335472	1.95845	3.75147	
Preference for regulation	.251053	1.47623	2.0683	3.1559

Demographic and Individual Difference Variables

Few demographic and individual difference variables predicted attitudes towards or desires to regulate genetically modified food in regression models (see Tables 1, S1, S2). One exception was attitudes towards the natural world (subjective connectedness to nature and inclusion of self in nature). Those who felt more one with nature were more opposed to GM and desired stricter regulations of GM technology, consistent with prior work (Siegrist, 1998). Additionally, older individuals desired stricter regulation of GM technology (Table 1), though surprisingly they were not more likely to be absolutist opponents to GM technology (Tables S1, S2) or view genetically modified food as riskier (see Table S4). Thus, age appears to be related to more favorable attitudes towards regulation specifically. Finally, gender showed strong bivariate relationships, where women were more opposed to GM technology (see Table S4), consistent with prior work (Siegrist, 1998). This relationship does not emerge in full regression models, suggesting that women are no longer more opposed after controlling for their heightened trait disgust sensitivity and/or risk perceptions. Gender effects were not capturing a "white male" effect on risk perception, as we did not find significant gender by white ethnicity interactions (Finucane, Slovic, Mertz, Flynn, & Satterfield, 2000).

Genetically modified food scenarios: Forced-choice results

For all four genetically modified food consumption scenarios, individuals were more disgusted than angered. Participants were more likely to select a disgust face or word in responses (Scenario 1: 56.5% disgust, 43.5% anger; Scenario 2: 59.1% disgust, 40.9% anger; Scenario 3: 56.2% disgust, 43.8% anger; Scenario 4: 58.6% disgust, 41.4% anger; all binomial test ps < .001). Participants were about equally likely to select disgust when selecting faces as when selecting words (Scenario 1: face disgust = 57.2%, word disgust = 55.7%, $\chi^2(1) = .20$, $p >$

.10; Scenario 2: face disgust = 59.1%, word disgust = 59.2%, $\chi^2(1) = .00$, $p > .10$; Scenario 3: face disgust = 53.7%, word disgust = 58.7%, $\chi^2(1) = 2.20$, $p > .10$; Scenario 4: face disgust = 56.3%, word disgust = 60.8%, $\chi^2(1) = 1.84$, $p > .10$). When choosing between disgust and anger faces, GM opponents were more likely than supporters to choose disgust faces in two out of four scenarios (Scenario 1: 54.1% supporters choose disgust, 59.8% opponents choose disgust, $\chi^2(1) = 1.21$, $p > .10$; Scenario 2: 50.7% supporters choose disgust, 64.1% opponents choose disgust, $\chi^2(1) = 6.92$, $p = .009$; Scenario 3: 54.1% supporters choose disgust, 52.2% opponents choose disgust, $\chi^2(1) = .14$, $p > .10$; Scenario 4: 49.3% supporters choose disgust, 61.0% opponents choose disgust, $\chi^2(1) = 5.09$, $p = .024$).

Genetically modified food scenarios: Intentionality manipulation

For each of the four genetically modified food scenarios, we randomly varied whether the food was consumed intentionally or unintentionally (i.e., with or without knowing the food was genetically modified; see full scenarios above). We examined the effects of intentions, emotion types, and opposition type in 2 (Intention: Intentional, Unintentional) x 2 (Emotion: Disgust, Anger) x 3 (Opposition: Absolutist Opponent, Non-absolutist Opponent, Supporter) mixed ANOVAs for each scenario. Overall, unintentional consumption evoked stronger emotion ratings, and this was especially the case for anger (Scenario 1: emotion: $F(1, 797) = 5.04$, $p = .025$, $\eta_p^2 = .01$, intention: $F(1, 797) = 24.73$, $p < .001$, $\eta_p^2 = .03$, opposition: $F(2, 797) = 148.24$, $p < .001$, $\eta_p^2 = .27$; emotion-intention interaction: $F(1, 797) = 6.21$, $p = .013$, $\eta_p^2 = .01$; emotion-opposition interaction: $F(2, 797) = 2.59$, $p = .075$, $\eta_p^2 = .01$; intention-opposition interaction: $F(2, 797) = 2.20$, $p > .10$; intention-emotion-opposition interaction: $F(2, 797) = 1.05$, $p > .10$; Scenario 2: emotion: $F(1, 797) = 2.69$, $p = .101$, $\eta_p^2 = .00$, intention: $F(1, 797) = 10.03$, $p = .002$, $\eta_p^2 = .01$, opposition: $F(2, 797) = 155.93$, $p < .001$, $\eta_p^2 = .28$; emotion-intention interaction: F(1,

797) = 12.88, $p < .001$, $\eta_p^2 = .02$; emotion-opposition interaction: F(2, 797) = 1.60, $p > .10$; intention-opposition interaction: F(2, 797) = .37, $p > .10$; intention-emotion-opposition interaction: F(2, 797) = .14, $p > .10$; Scenario 3: emotion: F(1, 797) = 10.41, $p = .001$, $\eta_p^2 = .01$, intention: F(1, 797) = 13.38, $p < .001$, $\eta_p^2 = .02$, opposition: F(2, 797) = 133.33, $p < .001$, $\eta_p^2 = .25$; emotion-intention interaction: F(1, 797) = 15.79, $p < .001$, $\eta_p^2 = .02$; emotion-opposition interaction: F(2, 797) = 1.64, $p > .10$; intention-opposition interaction: F(2, 797) = 1.47, $p > .10$; intention-emotion-opposition interaction: F(2, 797) = .73, $p > .10$; Scenario 4: emotion: F(1, 797) = 10.59, $p = .001$, $\eta_p^2 = .01$, intention: F(1, 797) = 8.56, $p = .004$, $\eta_p^2 = .01$, opposition: F(2, 797) = 135.46, $p < .001$, $\eta_p^2 = .25$; emotion-intention interaction: F(1, 797) = 7.87, $p = .005$, $\eta_p^2 = .01$; emotion-opposition interaction: F(2, 797) = .23, $p > .10$; intention-opposition interaction: F(2, 797) = 1.05, $p > .10$; intention-emotion-opposition interaction: F(2, 797) = .70, $p > .10$).

In that anger was more responsive to intentions, these findings are consistent with prior work on moral anger and disgust (Russell & Giner-Sorolla, 2011). We did not expect moral emotions to increase for unintentional consumption, but in retrospect we believe that this emotional reaction may have been directed towards genetically modified food producers, as opposed to unaware consumers. Indeed, a recent survey of a large sample of Americans revealed that 63% would be upset if they were served genetically modified food at a restaurant without knowing the food was genetically modified (Hallman, Cuite, & Morin, 2013). Consistent with this interpretation, disgust is not a reliably dominant response for unintentional consumption. For unintentional consumption scenarios, rated disgust and anger did not significantly differ (Scenario 1: $M_{anger} = 4.36$, $SD = 2.61$, $M_{disgust} = 4.43$, $SD = 2.57$, $t(435) = .98$, $p > .10$; Scenario 2: $M_{anger} = 4.98$, $SD = 2.71$, $M_{disgust} = 4.90$, $SD = 2.70$, $t(429) = 1.15$, $p > .10$; Scenario 3: $M_{anger} = 4.33$, $SD = 2.60$, $M_{disgust} = 4.36$, $SD = 2.57$, $t(439) = .37$, $p > .10$; Scenario 4: $M_{anger} = 4.34$, $SD =$

2.58, $M_{disgust}$ = 4.42, SD = 2.60, $t(413) = 1.14$, $p > .10$). If anything, these results indicate that including unintentional consumption generates bias against finding a unique association between disgust and GM opposition.

We also repeated analyses reported in the main text only using intentional consumption scenarios. All significant results remained significant and all patterns of means remained the same as those reported with two exceptions, both related to likelihood of selecting disgusted facial expression or verbal label. 1) Participants still choose disgusted more than angered faces in two of four scenarios, though it was a different two scenarios that showed significant effects; 2) There was some indication that the likelihood of disgust more often was higher when choosing between verbal labels as opposed to facial expressions. A chi square test of verbal/facial manipulation by disgust/anger choice was significant in one scenario and marginal in another.

Genetically modified food scenarios: Disgust to GM of animals versus plants

Scenarios involving genetically modified animal products were on average rated more disgusting than scenarios involving genetically modified plant products. The relationship between increased disgust and absolute opposition was about equally strong for plant and animal modification scenarios. In a mixed ANOVA of the effect of opposition status (absolutist opponent, non-absolutist opponent, supporter) on average Likert scale disgust rating for the plant product scenarios and average Likert scale disgust rating for the animal product scenarios, level of opposition affected disgust ratings ($F(2, 800) = 177.28$, $p < .001$, $\eta_p^2 = .31$), animal product scenarios increased disgust ratings ($F(1, 800) = 45.89$, $p < .001$, $\eta_p^2 = .05$), and the effect of opposition status did not differ for animal versus plant products ($F(2, 800) = 2.21$, $p > .10$).

Control scenario analyses

As we expected, after reading the dolphin-killing scenario more individuals selected an anger face or word (80.9% anger versus 19.1% disgust, $p < .001$) and individuals indicated more anger than disgust in Likert responses ($M_{anger} = 6.89$, $SD = 2.19$, $M_{disgust} = 6.62$, $SD = 2.28$, $t(858) = 4.91$, $p < .001$, $d = .17$). After reading the sex scenario, more individuals selected a disgust face or word (67.1% disgust versus 32.9% anger, $p < .001$) and individuals indicated more disgust than anger in Likert responses ($M_{disgust} = 7.29$, $SD = 2.38$, $M_{anger} = 6.40$, $SD = 2.79$, $t(858) = 13.88$, $p < .001$, $d = .49$).

Trait anger

We expected trait anger to predict absolute opposition of dolphin killing, as state anger does. However, in a multinomial logistic regression with "absolutist opponent" as reference category, standardized trait anger did not predict levels of non-absolute opposition ($b^* = .067$, Wald $\chi^2 = .57$, $p > .10$) or support ($b^* = -.073$, Wald $\chi^2 = .26$, $p > .10$). For absolute GM opposition, in a multinomial logistic regression with "absolutist opponent" as reference category, lower standardized trait anger did not predict levels of non-absolutist opposition ($b^* = .000$, Wald $\chi^2 = .00$, $p > .10$), though it was associated with lower likelihood of being a GM supporter ($b^* = -.248$, Wald $\chi^2 = 8.94$, $p = .003$). Trait anger was uncorrelated with desire to regulate GM foods ($r(857) = .012$, $p = .725$).

Supplemental Study

Design

Three hundred fifty-five U.S. participants from Amazon's Mechanical Turk completed an online survey in exchange for monetary compensation (M_{age}=35.9, SD=12.7, 57.2% female). Participants rated the persuasiveness of a series of arguments about genetically modified food. Participants were randomly assigned (with equal probability) to either complete a measure of

moral absolutism regarding genetically modification before rating these arguments, or to complete the absolutism measure *after* rating the arguments. All participants completed a series of demographic questions at the end of the survey.

Measures

Moral Absolutism. Our moral absolutism measure was adapted from Baron & Spranca (1997) and is described fully in the main text. We used this measure to classify participants as supporters (194/337, or 57.6%), non-absolutist opponents (37/337, or 11.0%), or absolutist opponents (106/337, or 31.5%). Eighteen participants were excluded for inconsistent responses (i.e., they indicated the did not oppose GM but also would prohibit GM no matter the risks and benefits, as done in our main study and by Baron & Spranca (1997))

Arguments. Participants were instructed to "rate the following arguments that people make about genetically modified food." Ten diverse arguments were presented in random order (one per page). Some arguments were based on welfare benefits to humanity (e.g., genetically modified food can help stop world hunger). Other arguments were based on assessments about risks and benefits to consumers (e.g., genetically modified foods look and taste better). Participants were asked to rate "How persuasive do you find this argument?" on a 7-point scale anchored by "Not at all persuasive" and "Extremely persuasive." The exact text of each argument is listed below (italicized labels were not shown to participants):

Hunger. Genetically modified crops could help stop world hunger. These crops can grow more units per square mile, which could be pivotal in an era where our population is outstripping our food production capacity.

Blindness. Genetically modified foods could prevent millions of people from going blind. For example, "golden rice" is a genetically modified form of rice with higher

levels of vitamin A. It has the potential to prevent blindness from vitamin A deficiency, which is widespread in Asia.

Pesticides. GM crops actually reduce pesticide use, which could minimize environmental impacts.

Risk. There is widespread consensus among scientists that consuming genetically modified food is no riskier than consuming food modified by conventional plant improvement techniques.

Vitamins. GM foods could make it easier for consumers to get their vitamins. We now grow rice with more vitamin A, which could help people get enough Vitamin A and maintain a balanced diet.

Profit 1. GM crops could increase profitability of farming. These crops require fewer pesticides, which lowers cost of production.

Profit 2. GM crops could increase profitability of farming. These crops can grow more units per square mile, which increases revenue.

Allergens. There is no evidence that genetic modification would introduce new allergens (substances that cause allergic reactions).

Freshness. Some GM foods can last longer in your refrigerator.

Taste. Some GM foods look and taste better.

Demographics. Participants indicated their gender, age, income bracket, education, sexual orientation, political orientation, religion, religiosity, and whether they grew up in a rural, urban, or suburban location.

Results

Effects of Arguments on Moral Absolutism. Seeing pro-genetically modified food arguments did not reliably change overall frequencies of supporters, non-absolutist opponents, and absolutist opponents, $\chi^2(2, N = 337) = 2.79$, $p = .248$ with Yates continuity correction (see Table S7). In addition to the non-significant overall effect of seeing pro-GM arguments, there was also so change in the proportion of absolutist opponents (vs. the two other categories), $\chi^2(1, N = 337) = 1.09$, $p = .297$ with Yates continuity correction. Looking only at GM opponents, there was a directionally lower proportion of absolutist opponents after seeing pro-GM arguments (52/76, or 68.4%) as compared to before seeing arguments (54/67, or 80.6%), but this difference in proportions did not reach significance, $\chi^2(1, N = 143) = 2.15$, $p = .142$ with Yates continuity correction. These results are broadly consistent with previous research finding that providing information or arguments does not reduce opposition to genetically modified food (Scholderer & Frewer, 2003).

Table S7

Levels of moral absolutism before exposure versus after exposure to arguments in favor of genetically modified food.

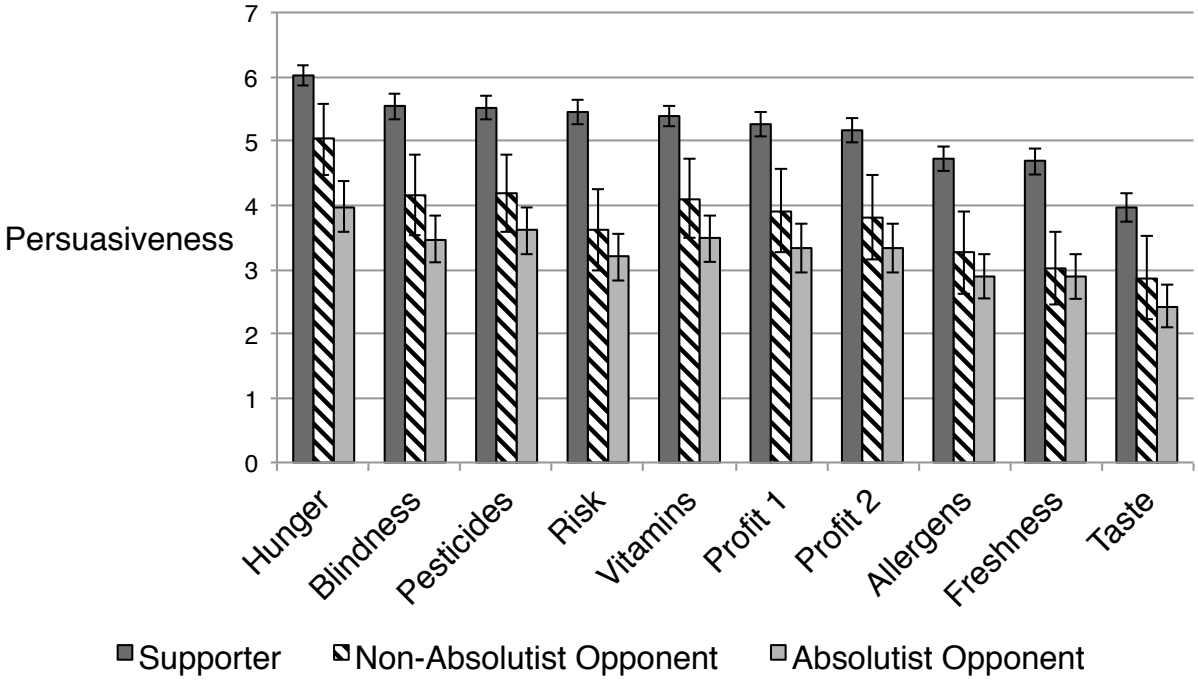
	Supporter	Non-Absolutist Opponent	Absolutist Opponent
Before Arguments	89 (57%)	13 (8%)	54 (35%)
After Arguments	105 (58%)	24 (13%)	52 (29%)

Note. Each cell displays counts and percentages (by row).

Rated Persuasiveness of GM Arguments. Figure S2 displays average persuasiveness ratings of the ten arguments, for supporters, non-absolutist opponents, and absolutist opponents. Unsurprisingly, supporters generally found the arguments most persuasive, absolutist opponents

found the arguments least persuasive, and non-absolutist opponents fell somewhere in between. Absolutist opponents found none of the arguments particularly persuasive; on average they rated every argument below the scale midpoint of four.

Figure S2. Rated persuasiveness of ten arguments for supporters, non-absolutist opponents and absolutist opponents. Error bars show 95% confidence intervals.



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