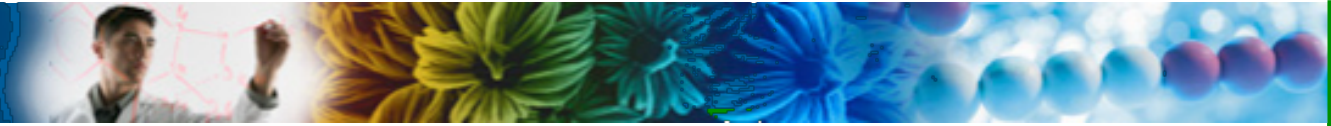




Woodrow Wilson
International
Center
for Scholars



Peter D
HART **RESEARCH**
ASSOCIATES

Nanotechnology, Synthetic Biology, And Public Opinion

Key findings from a survey among 1,001 adults nationwide
Conducted September 9-13, 2009

for

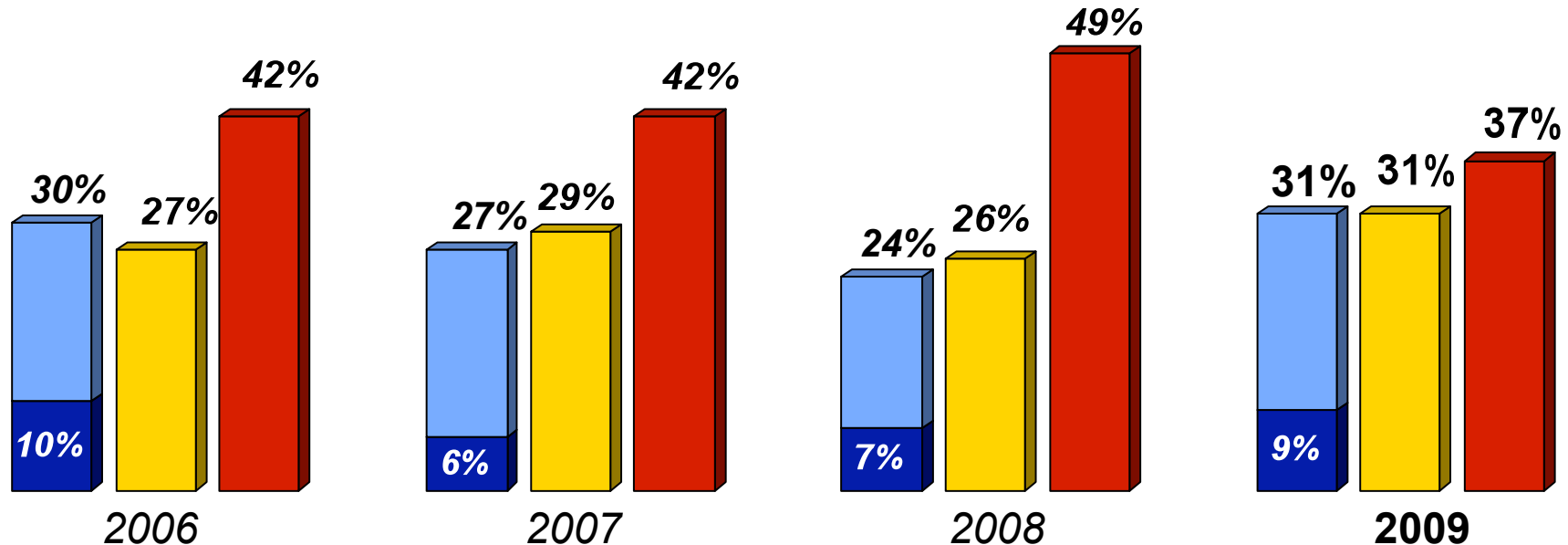
Project on Emerging Nanotechnologies
The Woodrow Wilson International Center for Scholars

Margin of error = ± 3.09 percentage points among all adults

Little Change In Public Awareness Of Nanotechnology

How much have you heard about nanotechnology?

■ Heard a lot ■ Heard some ■ Heard just a little ■ Heard nothing at all





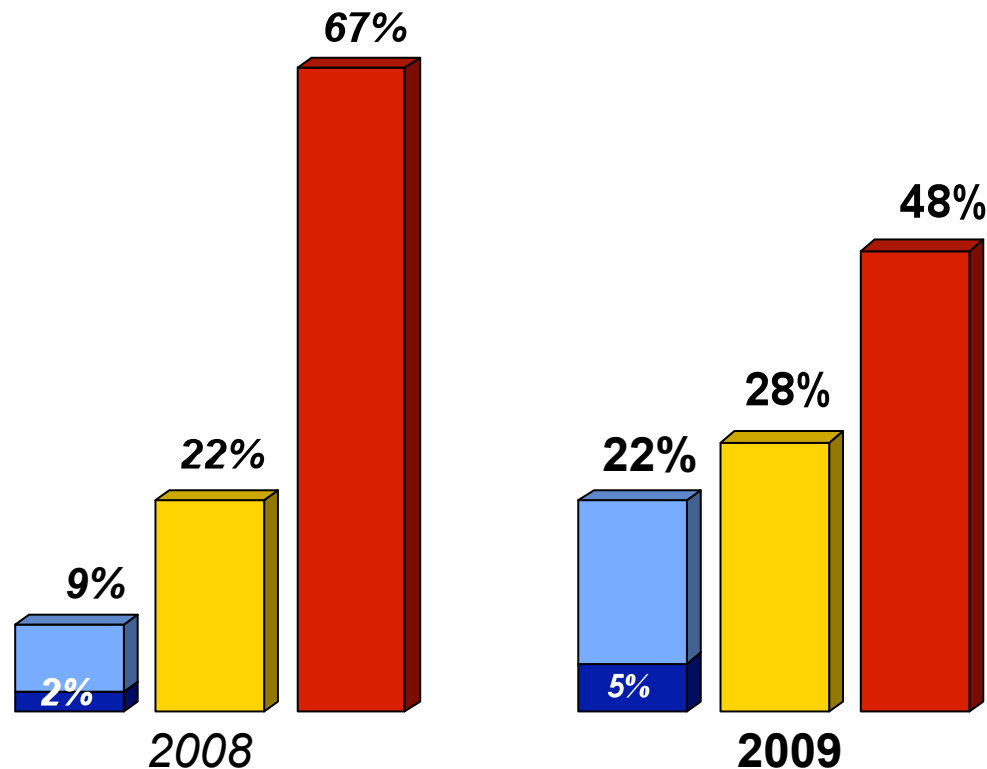
Public Awareness Of Nanotechnology, *Among Key Subgroups*

	Heard a lot/some about nanotechnology	Heard a little/nothing about nanotechnology
All adults	31%	68%
Men age 18 to 49	48%	52%
Men age 50/over	37%	61%
Women age 18 to 49	20%	78%
Women age 50/over	21%	76%
High school/less education	13%	86%
Some college/technical ed	30%	68%
College graduate/more ed	45%	54%
Income under \$30K	17%	82%
Income \$30K to \$50K	22%	75%
Income \$50K to \$75K	38%	62%
Income over \$75K	46%	54%
Whites	32%	67%
African Americans	15%	82%
Hispanics	30%	70%

Public Awareness Of Synthetic Biology Has More Than Doubled

How much have you heard about synthetic biology?

■ Heard a lot ■ Heard some ■ Heard just a little ■ Heard nothing at all





Public Awareness Of Synthetic Biology, *Among Key Subgroups*

	Heard a lot/some about synthetic biology	Heard a little/nothing about synthetic biology
All adults	22%	76%
Men age 18 to 49	25%	75%
Men age 50/over	28%	70%
Women age 18 to 49	17%	80%
Women age 50/over	20%	78%
High school/less education	11%	88%
Some college/technical ed	19%	79%
College graduate/more ed	35%	64%
Income under \$30K	17%	82%
Income \$30K to \$50K	15%	83%
Income \$50K to \$75K	24%	76%
Income over \$75K	33%	64%
Whites	23%	75%
African Americans	16%	79%
Hispanics	21%	78%

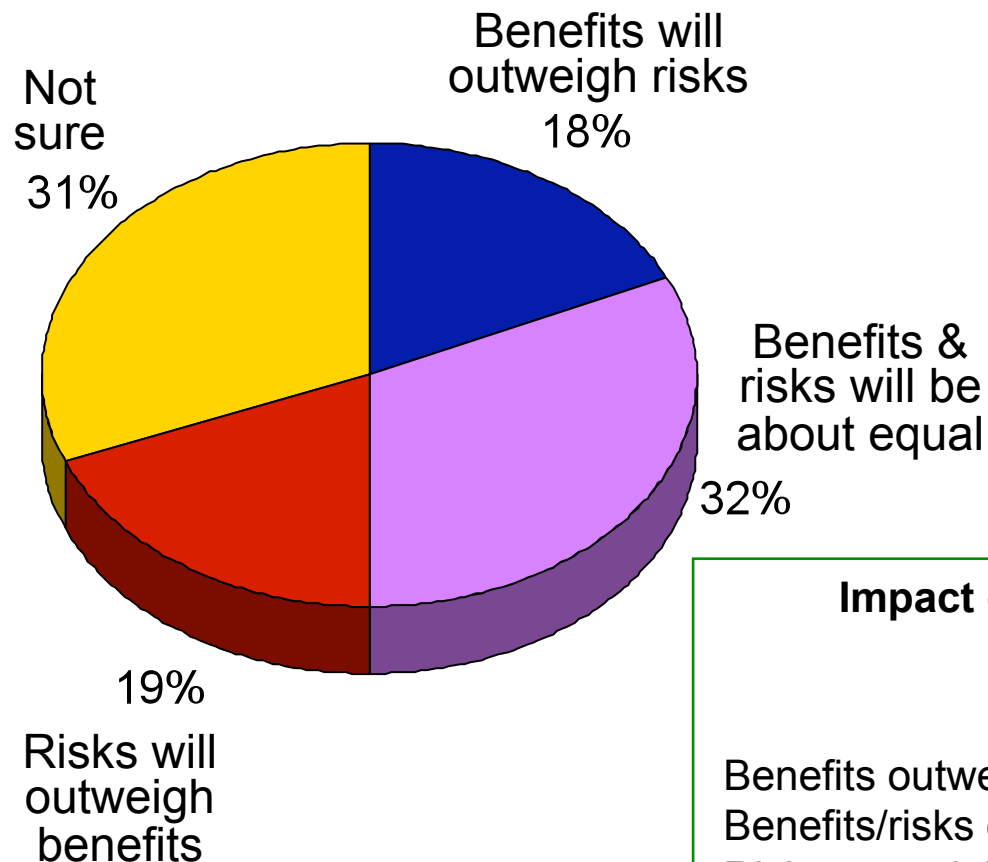


What Do You Think Synthetic Biology Is?

Volunteered Comments

Something man-made, artificial, fake, not natural, not real	29%
Has to do with cloning, genetic manipulation	13%
Has to do with biology, altering the biological makeup	7%
Used in medical research to develop new medicines, treatments	6%
Used to develop better, safer plants, sources of food	6%
Attempt to create life, artificial life	5%
Some kind of material, synthetic material	5%
Don't know; no response	28%

Initial Impression Of Risks And Benefits Of Synthetic Biology



Impact of Familiarity Prior to Survey

	Heard a lot	Heard some	Heard a little	Heard nothing
Benefits outweigh	44%	31%	21%	10%
Benefits/risks equal	33%	33%	38%	28%
Risks outweigh	16%	25%	17%	18%
Not sure	7%	11%	24%	44%



Initial Impression Of Risks And Benefits Of Synthetic Biology

	Benefits outweigh risks	Benefits/ risks equal	Risks outweigh benefits	Not sure
All adults	18%	32%	19%	31%
Men	25%	33%	16%	26%
Women	13%	31%	21%	35%
Men age 18 to 49	25%	31%	20%	24%
Men age 50/over	25%	36%	12%	27%
Women age 18 to 49	16%	33%	19%	32%
Women age 50/over	9%	29%	23%	39%
High school/less education	9%	33%	18%	40%
Some college/technical ed	17%	33%	22%	28%
College graduate/more ed	27%	30%	18%	25%
Income under \$30K	13%	36%	17%	34%
Income \$30K to \$50K	16%	31%	19%	34%
Income \$50K to \$75K	18%	32%	21%	29%
Income over \$75K	29%	32%	16%	23%



Initial Impression Of Risks And Benefits Of Synthetic Biology

	Benefits outweigh risks	Benefits/ risks equal	Risks outweigh benefits	Not sure
All adults	18%	32%	19%	31%
Whites	21%	31%	19%	29%
African Americans	11%	32%	20%	37%
Hispanics	11%	47%	15%	27%
Attend religious services:				
Weekly	14%	30%	25%	31%
Monthly	24%	35%	15%	26%
Less often/never	20%	36%	17%	31%
Evangelicals	17%	27%	24%	32%



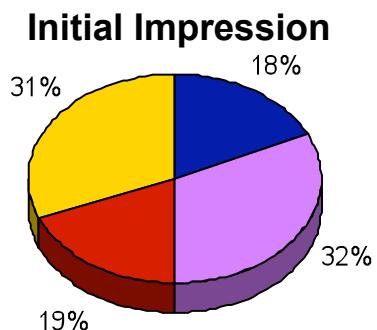
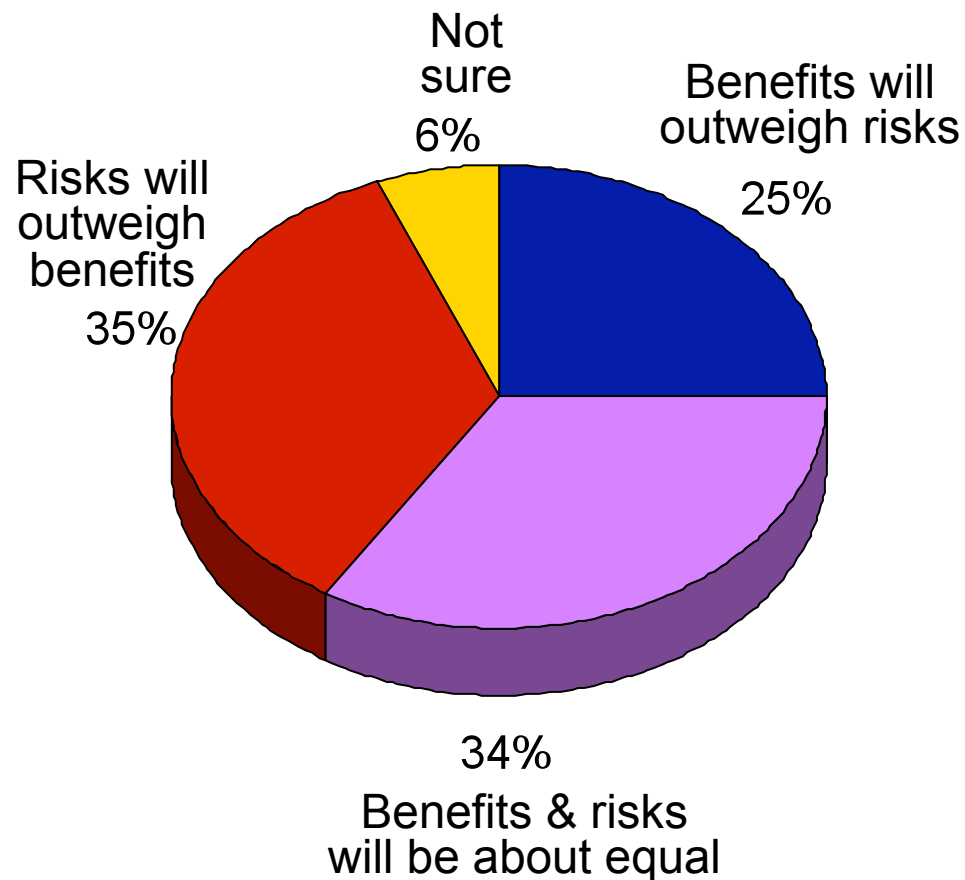
Information About Synthetic Biology

Synthetic biology is the use of advanced science and engineering to make or re-design living organisms, such as bacteria, so that they can carry out specific functions. Synthetic biology involves making new genetic code, also known as DNA, that does not already exist in nature.

The potential BENEFITS of synthetic biology include developing new micro-organisms to treat disease, including cancer, more effectively and to create new and less expensive medications. It also could be used to make new organisms that could provide cheaper and cleaner sources of energy than today's oil-based fuels, and to detect and break down environmental pollutants in the soil, air, and water.

While the potential RISKS of synthetic biology are not known, there are concerns that man-made organisms might behave in unexpected and possibly harmful ways and that they could cause harm to the environment. There also are concerns that, if these organisms fall into the wrong hands, they could be used as weapons. Additionally, the ability to create artificial life has raised moral and ethical questions about how life is defined.

Informed Impression Of Risks And Benefits Of Synthetic Biology



Initial/Informed Impression Of Risks And Benefits Of Synthetic Biology

	Initial Impression			Informed Impression		
	Benefits outweigh	Equal	Risks outweigh	Benefits outweigh	Equal	Risks outweigh
All adults	18%	32%	19%	25%	34%	35%
Men	25%	33%	16%	31%	34%	31%
Women	13%	31%	21%	20%	33%	40%
Men age 18 to 49	25%	31%	20%	28%	38%	32%
Men age 50/over	25%	36%	12%	33%	31%	30%
Women age 18 to 49	16%	33%	19%	20%	37%	39%
Women age 50/over	9%	29%	23%	19%	29%	42%
High school/less ed	9%	33%	18%	15%	38%	39%
Some college/tech ed	17%	33%	22%	25%	33%	37%
College graduate/more	27%	30%	18%	33%	31%	32%
Income under \$30K	13%	36%	17%	18%	36%	40%
Income \$30K to \$50K	16%	31%	19%	21%	41%	35%
Income \$50K to \$75K	18%	32%	21%	27%	31%	38%
Income over \$75K	29%	32%	16%	36%	30%	29%

Initial/Informed Impression Of Risks And Benefits Of Synthetic Biology

	Initial Impression			Informed Impression		
	Benefits outweigh	Equal	Risks outweigh	Benefits outweigh	Equal	Risks outweigh
All adults	18%	32%	19%	25%	34%	35%
Whites	21%	31%	19%	26%	33%	36%
African Americans	11%	32%	20%	17%	33%	39%
Hispanics	11%	47%	15%	22%	40%	33%
Attend religious services:						
Weekly	14%	30%	25%	19%	31%	44%
Monthly	24%	35%	15%	29%	39%	28%
Less often/never	20%	36%	17%	27%	34%	34%
Evangelicals	17%	27%	24%	18%	30%	46%
Initial familiarity:						
Heard a lot/some	34%	33%	23%	39%	29%	28%
Heard just a little	20%	38%	17%	26%	39%	29%
Heard nothing	10%	29%	18%	18%	32%	43%



Majority Support Using Synthetic Biology To Develop Synthetic Biofuels

Which comes closer to your point of view?

ENCOURAGE the development of synthetic biofuels because they would be a renewable energy source that could cost less, be better for the environment, and help address global warming. Synthetic biofuels could help ensure America's energy independence far into the future.



DISCOURAGE the development of synthetic biofuels because there will be no way to ensure that the new technologies are not used to create harmful things such as biological weapons. Even with the right intentions, the man-made organisms could behave in unpredictable and harmful ways, potentially causing damage to our environment. There are also moral questions about whether we should be creating artificial life.



Top Concerns About Using Synthetic Biology To Create Synthetic Biofuels

Which ONE of these concerns you most?

It could be used to create harmful things such as biological weapons



It is morally wrong to create artificial life



It could damage the environment



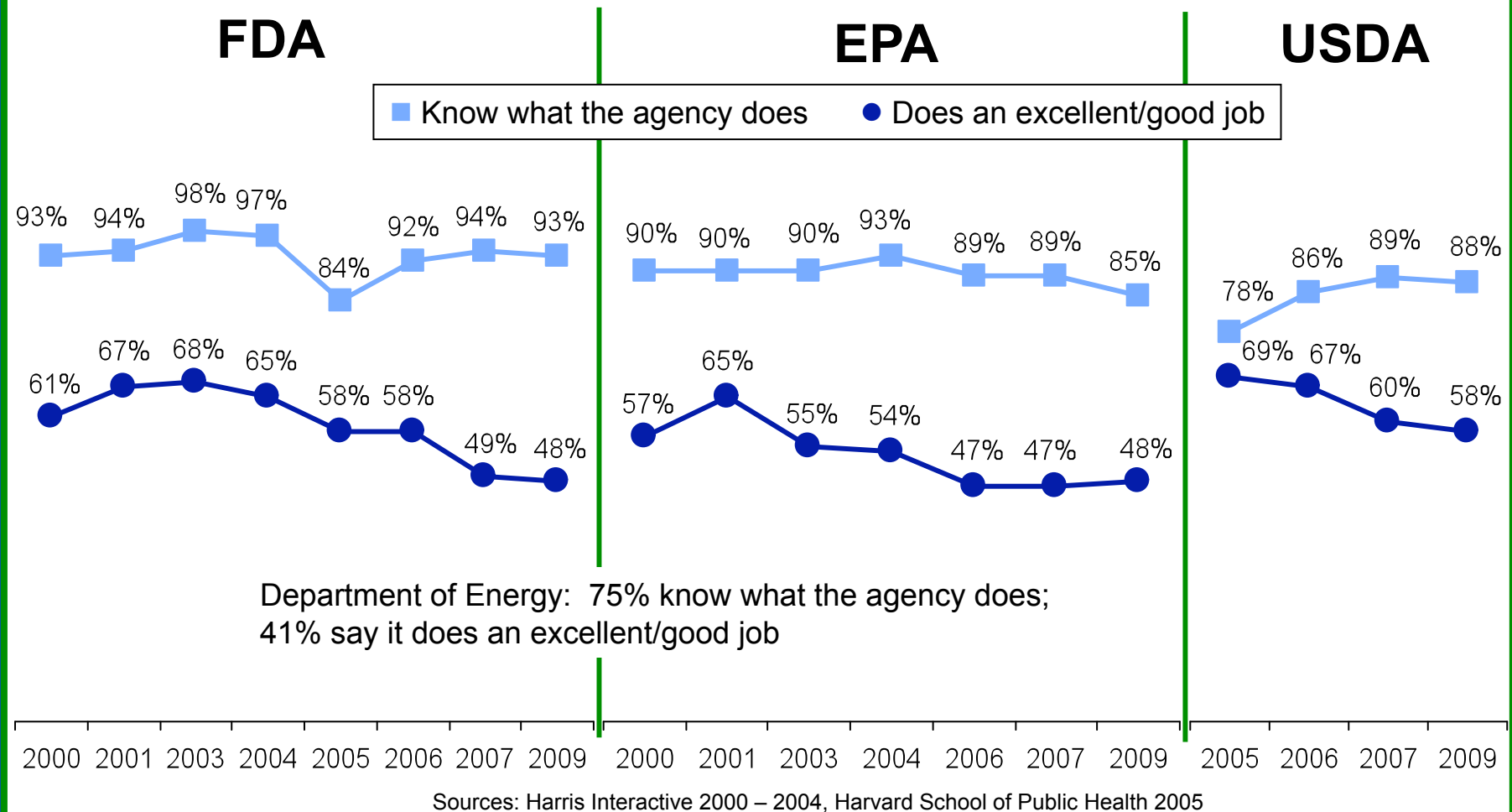
None of these is a concern



By Support for Developing Synthetic Biofuels

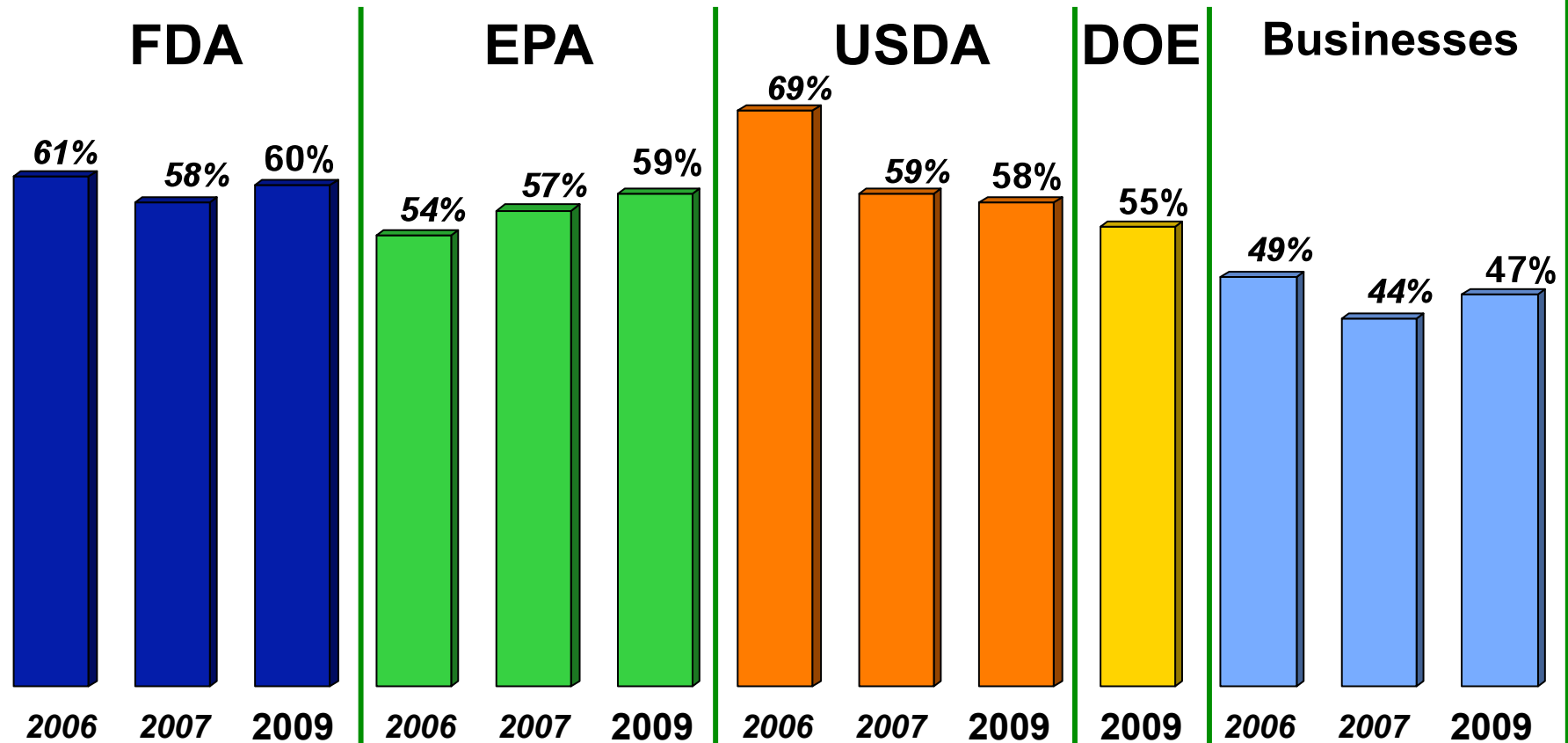
	Encourage	Discourage
Biological weapons	28%	33%
Morally wrong	17%	49%
Damage environment	20%	12%
No concern	31%	4%

Familiarity And Approval Ratings Of Agencies



Little Change In Public Confidence In Federal Agencies And Businesses

% great deal/fair amount of confidence that they maximize benefits/minimize risks of scientific/technological advancements in the industry they are associated with



Public Wants More Information And Federal Regulation

“While the issues we have been discussing may seem hypothetical and far in the future, the creation of synthetic life forms may be very close. Recently, researchers announced that within a few months they will be able to create artificial life in the form of a synthetic organism made from scratch.”

With that in mind, do you agree or disagree that:

More should be done to inform the public about this research

Federal gov't should regulate this research

This research worries me

I am excited about the promise of this research

