LOUIS HARRIS AND ASSOCIATES, INC.
630 Fifth Avenue
New York, New York 10111

/ FOR OFFICE USE ONLY:
/
/ Questionnaire No.:_____
/
/ 5-6-7-8

Study No. 861018 (Biotechnology)

July 3, 1986

Sample Point No./ / / / / / /
10-11-12-13-14

Time Started:_____A.M./P.M.

Interviewer:_____ I.D. No.:_____ Date:_____

Area Code: _____ Telephone No.: _____
(15-24)

Respondent: _____

As you know we are conducting a survey for Bristol-Myers on the future of medical research. Many of the questions look to the end of this century. We are interested to learn about the developments which you expect to see between now and the year 2000.

---

1. In the year 2000, what do you think will be the number one health problem in the United States and other western industrial countries?

(25-26)

(27-28)

2. And what do you think will be the number one health problem in the developing countries in the year 2000?

(29-30)

(31-32)

3. What do you think should be the nation's number one priority for medical research between now and the end of the century?

(33-34)

(35-36)

4. Smallpox has been eliminated. Are there any other diseases or conditions which you think there is a reasonable chance of our eliminating by the year 2000? Any others?

(37-38)

(39-40)

(41-42)

5. Obviously, genetic engineering has the potential to affect many different areas of medicine. If you had to pick a single disease or condition on which genetic engineering will have the greatest impact by the year 2000, what would it be?

_____ (43-44)

_____ (45-46)

6a. I will read you a list of some of the major areas of biotechnology. Please say for each one how promising you think it is on a scale of 0 to 10 where 0 is "not promising at all" and where 10 is "most promising one could imagine."

1. Molecular mechanisms of gene expression and regulation.....____ (47-48)
2. Molecular mechanisms of transcription and translation.....____ (49-50)
3. Molecular mechanisms of cell growth and differentiation.....____ (51-52)
4. Function of introns.....____ (53-54)
5. Methods to insert new DNA at specific locations in the genome.....____ (55-56)
6. DNA probes.....____ (57-58)
7. Transposons.....____ (59-60)
8. Complete genetic sequence of the human genome....____ (61-62)
9. Monoclonal antibodies for diagnostic tests.....____ (63-64)
10. Monoclonal antibodies for therapy, including using antibodies to carry a drug or toxin to specific sites.....____ (65-66)
11. Human monoclonal antibodies.....____ (67-68)
12. Methods to control the immunoglobulin type of monoclonal antibodies.....____ (69-70)
13. Producing proteins for therapeutic use, such as lymphokines.....____ (71-72)
14. Genetically engineered vaccines.....____ (73-74)
15. New manufacturing methods for conventional drugs, such as antibiotics.....____ (75-76)
16. Development of better microbes as host cells for culturing products.....____ (77-78)
17. Altering prokaryotic cells so they will perform functions such as glycosylation that are now limited to eukaryotic cells.....____ (79-80)
18. Improving the binding strength (or binding constant) of monoclonal antibodies.....____(2*10-11)
19. Improving methods for large-scale culture of bacterial, plant, and animal cells.....____ (12-13)
20. Improving methods for recovery and purification of biotechnical products from culture vats.....____ (14-15)

6b. Is there any other major area of biotechnology research which is more promising that those I have mentioned? If so, what is it?

_____ (16-17)

_____ (18-19)

_____ (20-21)

_____

_____

_____

_____

_____

_____

_____

_____

_____

7a. As you know, advances in clinical medicine often result from fundamental advances in basic research. What do you think is the most important fundamental question which needs to be answered in order to achieve a major breakthrough in biotechnology?

_____ (22-23)

_____ (24-25)

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

7b. If you had to guess, when do you think we will have the answer to that question?

19 / / / (26-27) 20 / / / (28-29)

8. What do you think will be the biggest frustration for scientists working in the field of biotechnology over the next 14 years?

(30-31)

(32-33)

34Z

9. I will read you a list of conditions. Please say how much improvement in the prevention or treatment of each one you think will result from the products of biotechnology by the year 2000 using a scale of 0 to 10 where 0 is "no change" and 10 is "will be prevented entirely." (PROBE IF NECESSARY: "We'd like your best guess.")

1. Sickle-cell anemia.....____ (35-36)
2. Thalassemia.....____ (37-38)
3. Hemophilia.....____ (39-40)
4. Huntington's chorea.....____ (41-42)
5. Down's syndrome.....____ (43-44)
6. AIDS.....____ (45-46)
7. Leukemias and lymphomas.....____ (47-48)
8. Solid tumors.....____ (49-50)
9. Cardiovascular and cerebrovascular disease.....____ (51-52)
10. Brain and central nervous system disorders.....____ (53-54)
11. Psychiatric disorders.....____ (55-56)
12. Alzheimer's disease.....____ (57-58)
13. Diabetes.....____ (59-60)
14. Arthritis.....____ (61-62)
15. Muscular dystrophy.....____ (63-64)
16. Multiple sclerosis.....____ (65-66)
17. Epilepsy.....____ (67-68)
18. Parkinsonism.....____ (69-70)
19. Chronic pain.....____ (71-72)
20. Malaria.....____ (73-74)
21. Cholera.....____ (75-76)
22. Hepatitis.....____ (77-78)
23. Slow viruses.....____ (79-80)
24. Herpes.....____(3*10-11)
25. Diarrheal illness.....____ (12-13)

10a. Specifically for organ transplants, what do you think will be the biggest advance resulting from bio-engineering by the year 2000?

(14-15)

(16-17)

10b. Specifically for cancer, what do you think will be the biggest advance resulting from bio-engineering by the year 2000?

(18-19)

(20-21)

10c. Specifically for heart disease, what do you think will be the biggest advance resulting from bio-engineering by the year 2000?

_____ (22-23)

_____ (24-25)

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

10d. In the year 2000, do you think that genetically-engineered insulin will cost much more, somewhat more, somewhat less, or much less than insulin produced from animal sources?

Much more.....(26(____-1
Somewhat more.....____-2
About the same (vol.).....____-3
Somewhat less.....____-4
Much less.....____-5
Not sure.....____-6

11. I will read you a list of a few of the medically relevant products that have been produced or soon will be produced through genetic engineering. Please say for each one how much of an impact it will have on treatment by the year 2000, using a scale of 0 to 10 where 0 means "it will have made no impact" and 10 means "it will have revolutionized the treatment of the relevant condition.

1. Human insulin.....____ (27-28)
2. Human growth hormone.....____ (29-30)
3. Serum albumin.....____ (31-32)
4. Clotting factor VIII.....____ (33-34)
5. Tissue plasminogen activator.....____ (35-36)
6. Kidney plasminogen activator.....____ (37-38)
7. Tumor necrosis factor.....____ (39-40)
8. Alpha, beta, and gamma interferons.....____ (41-42)
9. Interleukins.....____ (43-44)
10. Epidermal growth factor.....____ (45-46)
11. Nerve growth factor.....____ (47-48)
12. Genetically engineered vaccines.....____ (49-50)

12a. One estimate is that 20 percent of the drugs that are today produced by conventional means will, by the turn of the century, be produced by genetically altered microbes or cells. In your view, is that estimate too high, too low, or about right?

Too high.....(51(____-1
Too low.....____-2 (ASK Q.12b)

About right.....____-3
Not sure.....____-4 (SKIP TO Q.13)

12b. What do you think the percentage will be?

/ / / / %
(52-54)

13. Some scientists have argued that it is just as important to preserve natural genetic diversity through plant and animal gene banks as it is to create new genes in the lab. In your view, is gene banking of this sort very important, somewhat important, not very important, or not important at all?

Very important.....(55(____-1
Somewhat important.....____-2
Not very important.....____-3
Not important at all.....____-4
Not sure.....____-5

14. The United States federal government has recently announced new rules for assessing the risks and benefits of new genetic engineering research and new products. From what you have read, are you very satisfied, somewhat satisfied, somewhat dissatisfied, or very dissatisfied with these new rules?

Very satisfied.....	(56(	-1
Somewhat satisfied.....		-2
Somewhat dissatisfied.....		-3
Very dissatisfied.....		-4
Don't know enough about them (vol.).....		-5
Not sure.....		-6

15. In the year 2000, do you expect governmental regulation of biotechnology to be much more stringent than today, slightly more stringent, about the same, slightly less stringent, or much less stringent than today?

Much more stringent....	(57(	-1
Slightly more stringent....		-2
About the same.....		-3
Slightly less stringent....		-4
Much less stringent.....		-5
Not sure.....		-6

16. I will now read you a few statements. For each, please tell me whether you agree or disagree with the statement.

	Agree	Disagree	Not Sure
1. The potential danger from genetically altered cells and microbes is so great that strict regulations are necessary.....	(58(-1	-2	-3
2. The risks of genetic engineering have been greatly exaggerated.....	(59(-1	-2	-3
3. The controversy over safety has helped the biotechnology industry by encouraging the creating of rational guidelines under which the industry can move ahead.....	(60(-1	-2	-3
4. The unjustified fears of genetic engineering have seriously impeded the development of valuable new drugs and therapies.....	(61(-1	-2	-3

17. Would you approve of direct genetic therapy for a serious inherited defect if such therapy would necessarily involve altering the germ line of treated individuals?

Would approve.....(62(____-1
Would not aprove.....____-2
Not sure.....____-3

18a. Can you think of any applications for the field of biotechnology in organ transplants and medical transplants, or not?

Yes.....(63(____-1 (ASK Q.18b)

No.....____-2
Not sure.....____-3 (SKIP TO Q.19)

18b. What one application do you think is the most promising? (SPECIFY)

_____ (64-65)

_____ (66-67)

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

19a. In the year 2000, what do you think will be the most important, completely new medical use of biotechnology?

_____ (68-69)

_____ (70-71)

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

19b. Will this replace or only supplement existing therapies?

Replace.....(72(____-1 (ASK Q.19c)

Supplement.....____-2
Not sure.....____-3 (SKIP TO Q.20)

19c. Can you think of a specific therapy that will be replaced and, if so, by what? (PROBE: "What will be replaced by what?")

_____ (73-74)

_____ (75-76)

_____

_____

_____

_____

_____

_____

_____

_____ 77-80Z

19d. The United States Public Health Service estimates that by 1991 there will be a cumulative total of more than 270,000 cases of AIDS in the United States alone. Assuming there were no dramatic advance in preventing or treating the disease, what do you think the figure is likely to be in the year 2000?

_____,000_____
4*(40-45)

Not sure.....(46(____-1

19e. By what year do you think a safe and effective vaccine against AIDS will be generally available?

19 /__/__/ 4*(47-48)

20 /__/__/ (49-50)

Not sure.....(51(____-1

19f. By what year do you think an effective cure for AIDS will be generally available?

19 /__/__/ 4*(52-53)

20 /__/__/ (54-55)

Not sure.....(56(____-1

21a. Finally a question on life expectancy. The life expectancy of men and women in the United States is about 71 and 78 respectively. What is your best guess for what the life expectancy of men and women in the U.S. will be in the year 2000? RECORD BELOW

/__/__/__/ men (27-29) /__/__/__/ women (30-32)

21b. Do you think there is any limit to how much we can increase the human life span, or do you think that we can go on increasing it indefinitely?

There is a limit.....(33(____-1 (ASK Q.21c)

Go on increasing it indefinitely.....____-2 (THANK AND END INTERVIEW)
Not sure.....____-3

21c. What do you think that limit is for men? For women? RECORD BELOW

/__/__/__/ men (34-36) /__/__/__/ women (37-39)

57-80Z

That completes the interview. Thank you very much for your cooperation!

AFTER THANKING RESPONDENT:

As our letter to you indicated, we will send you a copy of the report as soon as it is ready. Your name will be included in the list of the people interviewed at the back of the report. However, I would like to confirm that only aggregate data will be included and no responses will be attributed to you or any other individuals.

TIME ENDED: _____ A.M./P.M.