

Business Model and Flavour/colour Markets for a Gene Discovery Technology

STRATEGIES TO GROW YOUR BUSINESS

Prepared by:
CPL Business Consultants
Innovation Centre, Milton Park, Abingdon, Oxfordshire, OX14 4RY
Tel: +44 1865 257 057, info@cplconsult.com, www.cplconsult.com

TABLE OF CONTENTS

OBJECTIVE	1
BACKGROUND AND METHOD	1
PRINCIPAL FINDINGS	2
MARKETS AND TRENDS	2
<i>Plant-derived Flavours</i>	2
<i>Mint and Menthol</i>	3
<i>Nutraceuticals: Carotenoids</i>	3
<i>Others</i>	5
BUSINESS MODEL	6
BUSINESS MODEL ANALYSIS	6
PROGRESS WITH FURTHER CONTACTS AND POTENTIAL PARTNERS	7
CONCLUSIONS	9
MARKETS AND TRENDS	9
<i>Plant-derived Flavours</i>	9
<i>Nutraceuticals: Carotenoids</i>	9
BUSINESS MODEL	9
BUSINESS MODEL ANALYSIS	10
PROGRESS WITH FURTHER CONTACTS AND POTENTIAL PARTNERS	11
RECOMMENDATIONS	12
MARKETS AND TRENDS FOR PLANT DERIVED FLAVOURS	13
GENERAL.....	13
VALUE CHAINS	13
MARKET FOR ESSENTIAL OILS.....	14
MARKET FOR BOTANICAL EXTRACTS	15
MARKET FOR MINT OILS	22
MARKET FOR MENTHOL	24
MARKETS AND TRENDS FOR CAROTENOIDS	31
GENERAL.....	31
MARKET FOR BETA CAROTENE	32
<i>Summary</i>	32
<i>Players</i>	33
<i>News</i>	33
MARKET FOR LYCOPENE	35
<i>Summary</i>	35
<i>Chemical Structure</i>	36
<i>Players</i>	36
<i>Health Benefits</i>	40
<i>News</i>	42
MARKET FOR LUTEIN AND ZEAXANTHIN	50
<i>Summary</i>	50
<i>Players</i>	51
<i>Health Benefits</i>	51
<i>News</i>	53
RESEARCH PROJECTS IN CAROTENOID PRODUCTION	55
ASTAXANTHIN	65
OTHERS	69
MARKET FOR PRODUCT 1	69

<i>Background and Player</i>	69
<i>Health Benefits</i>	69
<i>News</i>	71
MARKET FOR LIMONENE AND VISTRICRINE	76
BUSINESS MODEL	77
OVERVIEW.....	77
NEWS.....	80
BUSINESS MODEL ANALYSIS	85
OVERVIEW.....	85
DISCUSSION AND CASE STUDIES.....	85
DISCUSSION AND CASE STUDIES.....	86
PROGRESS WITH FURTHER CONTACTS AND POTENTIAL PARTNERS	92
OVERVIEW.....	92
CONTACT REPORTS	100
103 COMPANIES CONTACTED	

TABLES

TABLE 1. COMMON USES FOR SELECTED ESSENTIAL OILS	14
TABLE 2. WORLD TRADE IN ESSENTIAL OILS, PERFUMES AND FLAVOURS	15
TABLE 3. PLANT-DERIVED CHEMICALS MARKET FOR COSMETICS IN THE US	17
TABLE 4. VALUE OF PEPPERMINT PRODUCTION (\$'000S) IN THE US	23
TABLE 5. VALUE OF SPEARMINT PRODUCTION (\$'000S) IN THE US	23
TABLE 6. MAJOR CURRENT PRODUCING EXPORTING SOURCES	24
TABLE 7. MAJOR HISTORIC PRODUCING EXPORTING SOURCES	25
TABLE 8. MOST ACTIVE CYCLIC ALPHA-KETO ENAMINES FOR 'COOL' FLAVOURS.....	30
TABLE 9. LYCOPENE CONTENT OF SOME COMMON FOOD TYPES.....	37
TABLE 10. TYPICAL PRICES OF LYCOPENE SUPPLEMENTS	38
TABLE 11. LYCOPENE CONTENT OF SELECTED FRUIT AND VEGETABLE PRODUCTS.....	43
TABLE 12. LUTEIN AND ZEAXANTHIN CONTENT OF SELECTED FRUIT AND VEGETABLES	52
TABLE 13. COMPANIES WITH VIEWS ON FORWARD INTEGRATION/PROOF OF CONCEPT MODEL	79
TABLE 14. PROGRESS WITH ALL COMPANIES CONTACTED.....	94
TABLE 15. COMPANIES INTERESTED IN A MEETING IN THE NEAR FUTURE	98
TABLE 16. COMPANIES FRO POSSIBLE FUTURE CONTACT.....	98

FIGURES

FIGURE 1 FLAVOUR PROFILES OF MENTHOL ENANTIOMERS	27
FIGURE 2 FLAVOUR PROFILES OF NEOISOMENTHOL ENANTIOMERS.....	28
FIGURE 3 FLAVOUR PROFILES OF ISOMENTHOL ENANTIOMERS	29
FIGURE 4 PHARMACEUTICAL VS FOOD, INGREDIENT AND AGRI BIOTECH BUSINESS MODELS	85