

RESEARCH REPORT



Single Cell Genomics Markets

Forecasts by Technology, Product, Workflow, User & Country.
With Executive and Consultant Guides.

2023 to 2027





Howe Sound Research is a market research and consulting company based in Vancouver, British Columbia, Canada. In our spare time we like to sail in a large body of water nearby called Howe Sound. We publish market research reports that address scientific industries with an emphasis on Biotechnology and Clinical Diagnostic markets. We consider ourselves experts in these areas.

We approach market research differently than other companies. At any one time we have a limited number of reports, and we update them frequently, sometimes several times a year. Our reports are prepared by people who understand the industry and have worked and studied in the area. This contrasts with the many research mills who produce canned reports on the Handbag market one day and the XRay market the next.

Our intellectual property is encryption protected. If you have issues with this or would like to upgrade to a corporate license that is not encrypted, please contact us at the email above.

Please feel free to contact us if you have any questions. We believe in customer service and are more than willing to provide after sales assistance and custom data.

All Rights Reserved. This document contains copyrighted intellectual property. No part of it may be circulated, copied, quoted, or otherwise reproduced without the approval of Howe Sound Research.

Please respect our intellectual property and do not distribute this document beyond the terms of your license.

Table of Contents

1	Market Guides	18
1.1	Situation Analysis	19
1.2	Guide for Executives and Marketing Staff	21
1.3	Guide for Investment Analysts and Management Consultants.....	22
2	Introduction and Market Definition	23
2.1	What is Single Cell Genomics?.....	24
2.2	SCG – Still Early Days	25
2.3	Market Definition.....	26
2.3.1	Market Size	26
2.3.2	Currency	26
2.3.3	Years.....	26
2.4	Methodology.....	27
2.4.1	Methodology.....	27
2.4.2	Sources.....	27
2.4.3	Authors	27
2.5	Sizing the Genome – Not What You Think.....	29
2.5.1	Cost, Price and Genome Size, Pricing Practice.....	29
2.6	GLOBAL LISTING OF HIGH THROUGHPUT SEQUENCING ESTABLISHMENTS INSTALLED BASE – Location & Contacts	31
3	Single Cell Genomics – Guide to Technology	108
3.1	Isolating Single Cells	109
3.1.1	FACS	111
3.1.2	LCM	114

3.1.3	Micromanipulators	115
3.1.4	Microfluidics	115
3.2	Amplification	116
3.2.1	WTA – Whole Transcriptome Amplification.....	116
3.2.2	WGA – Whole Genome Amplification.....	117
3.3	PCR.....	117
3.4	NGS	118
3.5	Microarray	119
3.6	Digital Spatial Profiling (DSP) Technology	119
4	Industry Overview.....	121
4.1	Players in a Dynamic Market.....	122
4.1.1	Academic Research Lab	123
4.1.2	Diagnostic Test Developer.....	123
4.1.3	Instrumentation Supplier	124
4.1.4	Chemical/Reagent Supplier.....	124
4.1.5	Pathology Supplier	124
4.1.6	Independent Clinical Laboratory	124
4.1.7	Public National/regional Laboratory	125
4.1.8	Hospital Laboratory	126
4.1.9	Physicians Office Lab (POLs)	126
4.1.10	Audit Body	126
4.1.11	Certification Body.....	128
5	Market Trends	129
5.1	Factors Driving Growth	130
5.1.1	Immuno-oncology.....	131
5.1.2	Research Range.....	132
5.1.3	Technology Maturity & Convergence.....	132

5.1.4	Declining Costs	133
5.2	Factors Limiting Growth	134
5.2.1	Competition.....	134
5.2.2	Instrument Integration.....	134
5.2.3	Technology Shift	135
5.2.4	Technology Limitations.....	135
5.3	Technology Development	136
5.3.1	Spatial Profiling	136
5.3.2	Integration	136
5.3.3	Big Data	137
5.3.4	Kits and Commodities	137
5.4	Instrumentation, Automation and Diagnostic Trends	138
5.4.1	Traditional Automation and Centralization.....	138
5.4.2	The New Automation, Decentralization and Point Of Care	138
5.4.3	Instruments Key to Market Share	140
5.4.4	Bioinformatics Plays a Role	140
5.4.5	PCR Takes Command.....	140
5.4.6	Next Generation Sequencing Fuels a Revolution.....	142
5.4.7	NGS Impact on Pricing.....	143
5.4.8	Whole Genome Sequencing, A Brave New World	143
5.4.9	Companion Diagnostics Blurs Diagnosis and Treatment	143
5.4.10	Shifting Role of Diagnostics.....	145
6	Single Cell Genomics Recent Developments.....	147
6.1	Recent Developments – Importance and How to Use This Section	148
6.1.1	Importance of These Developments	148
6.1.2	How to Use This Section.....	148
6.2	MGI and Xpress Genomics to Advance Single-cell RNA-Sequencing	148

6.3	Single-Cell Sequencing Reveals Traits in Cereal Crops.....	149
6.4	Single-cell Genomics meets Human Genetics	152
6.5	Singular Genomics Launches Kits for Single Cell Sequencing.....	152
6.6	Scale Biosciences Introduces Disruptive Single-Cell Profiling Solutions.....	155
6.7	Singleron showcases latest single cell sequencing technology	156
6.8	Oxford Nanopore to Make Single-cell Sequencing Accessible to Any Laboratory.....	157
6.9	Single-Cell RNA-seq Method Enables Profiling Live Cells	158
6.10	Novogene Launches New Single-Cell Lab	162
6.11	New DNA Atlas Provides Clues for Heart Disease Risk.....	163
6.12	BioSkrbyb Genomics Launches ResolveOME.....	165
6.13	Parse Biosciences Expands Single-Cell Product Line.....	166
6.14	Massively Multiplexed Single-Cell In Situ Spatial Genomics Now in U.S. Market	168
6.15	Pfizer Centralizes Single Cell Data on Seven Bridges System.....	171
6.16	Consortium to Standardize Single-Cell Sequencing.....	173
6.17	Scienion, Cellenion Enter Licensing Deal	174
6.18	Immunai Acquires Swiss Bioinformatics Firm Nebion	175
6.19	Startup MiCareo Targets Rare Cell Isolation Market.....	176
6.20	Parse Biosciences Lowers Cost Barriers to Single-Cell Transcriptomics.....	179
6.21	Deepcell Advancing Tech for Single-Cell Genomics.....	183
6.22	10x Genomics Outlines 2021 Growth Plans	186
6.23	Single-Cell Genomics Firm Analytical Biosciences Inks Deal with BioMap	188
6.24	IsoPlexis Features Cheaper, More Flexible Single-Cell Proteomic Systems	189
6.25	DNTR-Seq Combines WGS, Transcriptomics in Single Cells	191
6.26	BitBiome Builds Single-Cell Bacterial Sequencing Business	194
6.27	S2 Genomics Signs Distribution Agreements for Asia-Pacific.....	196
6.28	Single-Cell COVID-19 Study Investigates Immune Hyperactivation.....	197
6.29	Levitas Bio to Launch Magnetic Levitation Cell Separation Platform.....	198

6.30	Single-Cell and Spatial Genomics	202
6.31	Single-Cell Genomics.....	203
6.32	Namocell, Takara Bio, HepaTx Partner on Single-Cell Genomics	204
6.33	Vizgen Launches With \$14M Series A Financing	205
6.34	SeqWell Raises \$9M in Series B Round.....	205
7	Profiles of Key Single Cell Genomics Companies.....	207
7.1	10x Genomics, Inc.....	208
7.2	1CellBio	209
7.3	Agilent/Dako	210
7.4	Beckman Coulter Diagnostics.....	212
7.5	Becton, Dickinson and Company	213
7.6	Berkley Lights	215
7.7	BGI Genomics Co. Ltd	216
7.8	BioGenex	218
7.9	Bio-Rad Laboratories, Inc.	219
7.10	BioSkryb Genomics.....	221
7.11	Bitbiome	222
7.12	Bruker.....	223
7.13	Cell Microsystems	224
7.14	Cellsee Diagnostics	225
7.15	CellSorter.....	226
7.16	Cytek Biosciences	227
7.17	Cytana	229
7.18	Deepcell	230
7.19	Dolomite Bio.....	231
7.20	Element Biosciences	232
7.21	Element Biosciences	233

7.22	Epic Sciences.....	235
7.23	Fluxion Biosciences.....	236
7.24	Illumina	237
7.25	Incell Dx.....	238
7.26	Labcyte.....	239
7.27	Leica Biosystems.....	240
7.28	Menarini Silicon Biosystems.....	241
7.29	Miltenyi Biotec	242
7.30	Mission Bio	243
7.31	Myllia Biotechnology.....	244
7.32	Nanostring.....	245
7.33	New England Biolabs, Inc.	246
7.34	Novogene Bioinformatics Technology Co., Ltd.....	247
7.35	Oxford Nanopore Technologies	249
7.36	Pacific Biosciences.....	250
7.37	Parse Biosciences	251
7.38	Qiagen	253
7.39	Readcoor.....	254
7.40	Revvity.....	255
7.41	Roche Molecular Diagnostics	256
7.42	S2 Genomics.....	258
7.43	Scale Biosciences.....	259
7.44	Singleron Biotechnologies	260
7.45	Singular Genomics	261
7.46	Singulomics	262
7.47	Sony Biotechnology	263
7.48	Standard BioTools.....	264

7.49	Takara Bio	265
7.50	Thermo Fisher Scientific Inc.....	266
7.51	Ultima Genomics.....	267
7.52	Vizgen	268
7.53	Watchmaker Genomics	269
8	Single Cell Genomics Global Market Size	270
8.1	Global Market Overview by Country	271
8.1.1	Table – Global Market by Country.....	271
8.1.2	Chart – Global Market by Country	272
8.2	Global Market Size by Technology - Overview	273
8.2.1	Table – Global Market by Technology	273
8.2.2	Chart – Global Market by Technology – Base/Final Year Comparison	274
8.2.3	Chart – Global Market by Technology – Base Year	275
8.2.4	Chart – Global Market by Technology – Final Year.....	276
8.2.5	Chart – Global Market by Technology – Share by Year.....	277
8.2.6	Chart – Global Market by Technology – Segment Growth	278
8.3	Global Market by Product - Overview	279
8.3.1	Table – Global Market by Product.....	279
8.3.2	Chart – Global Market by Product – Base/Final Year Comparison.....	280
8.3.3	Chart – Global Market by Product – Base Year.....	281
8.3.4	Chart – Global Market by Product – Final Year	282
8.3.5	Chart – Global Market by Product – Share by Year	283
8.3.6	Chart – Global Market by Product – Segment Growth.....	284
8.4	Global Market by Workflow - Overview	285
8.4.1	Table – Global Market by Workflow.....	285
8.4.2	Chart – Global Market by Workflow – Base/Final Year Comparison.....	286
8.4.3	Chart – Global Market by Workflow – Base Year.....	287

8.4.4	Chart – Global Market by Workflow – Final Year	288
8.4.5	Chart – Global Market by Workflow – Share by Year.....	289
8.4.6	Chart – Global Market by Workflow – Segment Growth.....	290
8.5	Global Market by End User - Overview	291
8.5.1	Table – Global Market by End User.....	291
8.5.2	Chart – Global Market by End User – Base/Final Year Comparison.....	292
8.5.3	Chart – Global Market by End User – Base Year.....	293
8.5.4	Chart – Global Market by End User – Final Year	294
8.5.5	Chart – Global Market by End User – Share by Year	295
8.5.6	Chart – Global Market by End User – Segment Growth.....	296
9	Global Market by Technology	297
9.1	PCR Market.....	298
9.1.1	Table - PCR Market by Country	298
9.1.2	Chart - PCR Market by Country	299
9.2	qPCR Market	300
9.2.1	Table - qPCR Market by Country	300
9.2.2	Chart - qPCR Market Growth	301
9.3	NGS Market	302
9.3.1	Table – NGS Market by Country.....	302
9.3.2	Chart – NGS Market Growth.....	303
9.4	Microarray Market	304
9.4.1	Table - Microarray Market by Country	304
9.4.2	Chart - Microarray Market Growth	305
9.5	Other Technology Market	306
9.5.1	Table - Other Technology Market by Country	306
9.5.2	Chart - Other Technology Market Growth.....	307
10	Single Cell Genomics Market by Product	308

10.1	Instrument Market	309
10.1.1	Table - Instrument Market by Country	309
10.1.2	Chart - Instrument Market Growth	310
10.2	Reagent Market	311
10.2.1	Table - Reagent Market by Country	311
10.2.2	Chart - Reagent Market Growth.....	312
10.3	Software & Other Market.....	313
10.3.1	Table - Software & Other Market by Country	313
10.3.2	Chart - Software & Other Market Growth	314
11	Single Cell Genomics Market by Workflow	315
11.1	Cell Isolation Market.....	316
11.1.1	Table - Cell Isolation Market by Country	316
11.1.2	Chart - Cell Isolation Market Growth	317
11.2	Sample Preparation Market	318
11.2.1	Table - Sample Preparation Market by Country	318
11.2.2	Chart - Sample Preparation Market Growth.....	319
11.3	Genomic Analysis Market.....	320
11.3.1	Table - Genomic Analysis Market by Country.....	320
11.3.2	Chart - Genomic Analysis Market Growth	321
12	Single Cell Genomics Market by End User	322
12.1	Research Market	323
12.1.1	Table - Research Market by Country	323
12.1.2	Chart - Research Market Growth.....	324
12.2	BioPharma Market.....	325
12.2.1	Table - BioPharma Market by Country	325
12.2.2	Chart - BioPharma Market Growth	326
12.3	Clinical Market.....	327

12.3.1	Table - Clinical Market by Country	327
12.3.2	Chart - Clinical Market Growth	328
12.4	Other End User Market	329
12.4.1	Table - Other End User Market by Country.....	329
12.4.2	Chart - Other End User Market Growth.....	330
13	Appendices	331
13.1	FDA Cancer Drug Approvals by Year.....	332
13.2	Clinical Trials Started Historical	333
13.3	Prevalence of Cancer Treatments	334

Table of Tables

Table 1 Global List of Gene Sequencing Facilities.....	32
Table 2 Cell Isolation Overview	111
Table 3 Market Players by Type	123
Table 4 Five Factors Driving Growth.....	130
Table 5 Three Factors Limiting Growth	134
Table 6 Seven Key Diagnostic Laboratory Technology Trends	138
Table 7 Single Cell Genomics Global Market by Country/Region	271
Table 8 Single Cell Genomics Global Market by Technology	273
Table 9 Global Market by Product.....	279
Table 10 Global Market by Workflow.....	285
Table 11 Global Market by End User.....	291
Table 12 PCR Market by Country	298
Table 13 qPCR Market by Country.....	300
Table 14 NGS Market by Country.....	302
Table 15 Microarray Market by Country.....	304
Table 16 Other Technology Market by Country.....	306
Table 17 Instrument Market by Country.....	309
Table 18 Reagent Market by Country.....	311
Table 19 Software & Other Market by Country.....	313
Table 20 Cell Isolation Market by Country.....	316
Table 21 Sample Preparation Market by Country	318
Table 22 Genomic Analysis Market by Country	320
Table 23 Research Market by Country	323
Table 24 BioPharma Market by Country.....	325

Table 25 Clinical Market by Country 327

Table 26 Other End User Market by Country 329

Table of Figures

Figure 1 Size of Different Genomes	29
Figure 2 fluorescence Activated Sorter	113
Figure 3 The Road to Diagnostics	122
Figure 4 Centralized vs. Decentralized Laboratory Service	139
Figure 5 A Highly Multiplexed Syndromic Testing Unit.....	139
Figure 6 The Real Cost to Sequence the Human Genome.....	142
Figure 7 The Codevelopment Process	144
Figure 8 Comparing MDx Diagnostic and Traditional Testing.....	145
Figure 9 Market Size by Country	272
Figure 10 Global Market by Technology - Base vs. Final Year.....	274
Figure 11 Technology Market Base Year	275
Figure 12 Technology Market Final Year.....	276
Figure 13 Technology Share by Year.....	277
Figure 14 Technology Segment Growth	278
Figure 15 Product - Base vs. Final Year.....	280
Figure 16 Product Market Base Year.....	281
Figure 17 Product Market Final Year	282
Figure 18 Product Share by Year	283
Figure 19 Product Segment Growth.....	284
Figure 20 Workflow - Base vs. Final Year.....	286
Figure 21 Workflow Market Base Year.....	287
Figure 22 Workflow Market Final Year	288
Figure 23 Workflow Share by Year	289
Figure 24 Workflow Segment Growth.....	290

Figure 25 End User - Base vs. Final Year.....	292
Figure 26 End User Market Base Year.....	293
Figure 27 End User Market Final Year	294
Figure 28 End User Share by Year	295
Figure 29 End User Segment Growth.....	296
Figure 30 Chart – PCR Market Growth	299
Figure 31 Chart qPCR Market Growth	301
Figure 32 Chart – NGS Market Growth.....	303
Figure 33 Chart – Microarray Market Growth.....	305
Figure 34 Chart – Other Technology Market Growth	307
Figure 35 Chart - Instrument Market Growth	310
Figure 36 Chart – Reagent Market Growth	312
Figure 37 Chart – Software & Other Market Growth.....	314
Figure 38 Chart - Cell Isolation Market Growth	317
Figure 39 Chart – Sample Preparation Market Growth	319
Figure 40 Chart – Genomic Analysis Market Growth.....	321
Figure 41 Chart - Research Market Growth.....	324
Figure 42 Chart – BioPharma Market Growth.....	326
Figure 43 Chart – Clinical Market Growth.....	328
Figure 44 Chart – Other End User Market Growth	330
Figure 45 FDA Cancer Drug Approvals by Year.....	332
Figure 46 Clinical Trials for Immunotherapy by Year	333
Figure 47 Pie Chart of Prevalence of Cancer Treatments	334