

qPCR Assay Trends 2008



October 2008
www.htstec.com

Conditions Under Which This Market Report Is Sold

This REPORT is Copyright protected by HTStec Limited. All rights reserved. Purchase of an electronic license to this REPORT entitles you to use it solely and exclusively within the purchasing Company. Neither this REPORT nor any of its contents may be disclosed or transferred by any means (electronic or otherwise) to ANY third party (i.e. beyond the purchasing Company) without the prior written approval of HTStec Limited.

HTStec Limited has exercised due care in compiling and preparing this REPORT, which is based on information submitted by individuals in respondent companies. HTStec Limited has NOT verified the accuracy of this information, nor has it established respondent's authority to disclose information to HTStec Limited. HTSTEC LIMITED EXPRESSLY DISCLAIMS ANY AND ALL WARRANTIES CONCERNING THIS REPORT, INCLUDING ANY WARRANTIES OF MERCHANTABILITY AND/OR FITNESS FOR ANY PARTICULAR PURPOSE, AND WARRANTIES OF PERFORMANCE, AND ANY WARRANTY THAT MIGHT OTHERWISE ARISE FROM COURSE OF DEALING OR USAGE OF TRADE. NO WARRANTY IS EITHER EXPRESSED OR IMPLIED WITH RESPECT TO THE USE OF THE REPORT. Under no circumstances shall HTStec Limited be liable for incidental, special, indirect, direct or consequential damages or loss of profits, interruption of business, or related expenses that may arise from use of this REPORT, including but not limited to those resulting from inaccuracy of the data therein.

Executive Summary

- This market report summarizes the results of HTStec's industry-wide global web-based benchmarking survey on real-time quantitative PCR (qPCR) assays and instruments carried out in September 2008.
- The study was initiated by HTStec as part of its ongoing tracking of emerging life science technologies and marketplaces. The main objectives were to comprehensively document current practices, preferences and trends in qPCR assays and instruments, and to understand future user requirements. Equal emphasis was given to soliciting opinion from all organizations where qPCR assays are currently being used and applied, with no geographic bias in the distribution of persons contacted.
- The survey looked at the following aspects of qPCR assays and instruments as practiced today (2008) and predicted for the future (2010): the main targets for qPCR applications; application areas which are the main focus for qPCR analyses; interest in new and emerging qPCR applications; number of qPCR samples (wells or tubes) processed per batch and per lab per year; percentage of qPCR mastermixes wasted; how long qPCR mastermixes are held for and the storage conditions used; total assay volumes for qPCR assays; main and secondary qPCR assay formats; decision factors in the purchase of a particular vendor's assay reagents; type of reagents respondent prefer to buy; level of satisfaction with existing reagents; vendors that were respondents top 3 providers of qPCR assay reagents; impression of qPCR cycler technologies; plans to purchase new real-time qPCR cyclers; factors influencing purchase of real-time cyclers; real-time manufacturers most associated with various desirable characteristics/attributes; qPCR assay consumables annual budgets and their breakdown; qPCR real-time cycler budgets; level of automation applied to qPCR assays; automation platforms used, satisfaction with automated system and level of walk-away automation achieved; use of non-contact bulk reagent dispensers and dispensing precision (%CV) achieved and required; factors limiting ability to make maximum use of qPCR instrumentation; and improvements respondents think are required or unmet needs that exist in qPCR assays today.
- The main questionnaire consisted of 24 multi-choice questions and 1 open-ended question. In addition, there were 7 questions related solely to the administration and demographics of survey.
- The survey collected 162 responses. 87 of these were subsequently excluded as did not meet our initial respondent selection criteria or came from vendor companies active in the qPCR area. This left 75 survey respondents that met our selection criteria, provided verifiable business email addresses and gave input in the majority of questionnaire.
- All respondents met the following criteria: 1) were currently undertaking qPCR assays; 2) make or influence purchasing decisions for qPCR reagents, kits or consumables and; 3) were currently using or will you purchase within 1 year a qPCR real-time thermal cycler.
- Survey responses were geographically split – 56% Europe, 29% North America, 8% Rest of World and 7% Asia (Excluding Japan).
- Respondents came from 23 University or Research Institute; 20 Biotech; 9 Contract Research Organisation; 9 Diagnostics; 8 Pharma; 3 Government/Military/Defense; 2 Hospital/Clinic; and 1 Other.
- Most survey respondents had a senior job role or position which was in descending order: 17 Research Scientists; 13 Other Roles; 8 Senior Scientist/Research Associates; 7 Principle Investigators; 6 Section/Group Leaders; 6 Directors; 5 Lab/Research Managers; 5 Department Heads; 3 Vice Presidents; 3 Post-docs; and 2 Professor/Asst. Professors.
- Survey results were expressed as an average of all survey respondents. In addition, the data was fully reanalyzed after sub-division into the following 4 survey groups: 1) Pharma & Biotech; 2) Other Organizations; 3) Europe; and 4) North America.
- The main targets for qPCR applications where respondents are quantifying nucleic acids today were mRNA and DNA.
- The application areas which were the primary focus of respondent's qPCR analyses today were gene expression studies and then molecular diagnostics.
- Expression profiling and multi-marker diagnostics were rated the most interesting new and emerging qPCR application areas.

- Respondents reported a median of 50–100 qPCR samples (tubes or wells) processed per batch and 5K–10K qPCR samples processed per lab per year today (2008).
- Typically a median of 5% of qPCR mastermixes were wasted or remain unused from each prealiquoted tube or bottle.
- qPCR mastermixes were held for a median maximum holding time of 5 days, and stored mainly at +4°C.
- Respondents reported a median total assay volume of 25–50µL for qPCR assays undertaken today (2008). The 96–well PCR plate was the most used assay format.
- Expectation of higher quality/purity was rated the factor of greatest importance in a decision to purchase a vendor's qPCR reagents.
- The majority of respondents preferred pre-optimized qPCR mastermixes (used according to manufacturers instructions) as opposed to qPCR bulk reagents bought separately (optimized & validated in own lab), and were reasonably satisfied with the reagents offered for qPCR assays today.
- Based on preferred qPCR reagent provider rankings, Applied Biosystems was estimated to be the market leader with around 25% market share; it was followed by Invitrogen, Qiagen. Bio–Rad, Stratagene and then Roche Applied Science.
- Of the available real–time thermal cycler technologies Peltier Element Thermal Block instruments were the most preferred and regarded as the most cost–effective real–time cycling systems.
- Considerable interest was shown in purchasing new real–time thermal cyclers over the coming years, with systems manufactured by Applied Biosystems; Cepheid; Roche Applied Sciences and Corbett (Qiagen), Bio–Rad and Stratagene most preferred.
- Data quality expectations and assay design & data analysis capability/features were rated the factor most influencing the purchase of a new real–time cycler.
- Of the real–time thermal cyclers manufacturers Applied Biosystems were rated most highly by respondents against a set of attributes/desirable characteristics.
- Respondents reported a median qPCR assay reagent consumables budget of \$25K–\$50K per lab per year today (2008). The greatest proportion of this qPCR assay reagent consumables budget was used for commercial qPCR detection kits, followed by PCR–specific labware, custom probes or primers, commercial qPCR bulk reagents, and then assay design and data analysis software.
- A bottom–up model was developed to estimate the qPCR assay consumables markets using respondent data derived from this survey. The qPCR assay consumables market was estimated to be \$750 million in 2008 of which around 40% is commercial qPCR detection kits. Growth estimates for 2010 are given.
- Respondents reported a median qPCR real–time cycler budget of \$25K–\$50K per lab per year today (2008).
- A bottom–up model was developed to estimate the qPCR real–time cycler markets using respondent data derived from this survey. The qPCR real–time cycler market was estimated to be around \$100 million, equivalent to sales of around 3,000 units in 2008. Growth estimates for 2010 are given.
- Only 40% of respondents have applied automation to qPCR assays today (2008). Current automation was mainly limited to small scale nucleic acid extraction and qPCR assay setup.
- The automation platforms survey respondents have used for qPCR are documented, together with their satisfaction with the systems and the level of walk–away automation achieved. Platforms from Beckman, Corbett and Eppendorf were the most used by respondents.
- Only a small proportion of respondents are currently using non–contact bulk dispensers to routinely dispense qPCR master mixes or reagents. The median dispensing precision (% CV) routinely achieved with qPCR reagents was 6% today.
- Cost of instrumentation was rated as the factor most limiting respondent's ability to make maximum use of qPCR instrumentation.
- Respondent feedback on the unmet needs (improvements required) that exist in qPCR assays today are documented.
- The full report provides the details, the breakdown of the responses for each question and the estimates for the future (2010). It also highlights several interesting differences between the survey groups.

Table of Contents

Executive Summary	2
Table of Contents.....	4
Survey Methodology.....	5
Respondent's Company or Organisational Origin	7
Respondent's Geographic Origin.....	8
Respondent's Job Role	9
Targets for qPCR Applications.....	10
Application Areas for qPCR Analyses	11
Emerging qPCR Application Areas	12
Number of qPCR Samples Processed per Batch	13
Number of qPCR Samples Processed per Year.....	14
Percentage of qPCR MasterMixes Wasted.....	15
Use Pattern and Storage Conditions for MasterMixes.....	16
Total Assay Volume for qPCR Assays	17
Summary of Survey Findings (1).....	18
Main qPCR Assay Formats	19
Secondary qPCR Assay Formats.....	20
Factors Influencing Purchase of qPCR Reagents	21
Preferred Type of qPCR Assay Reagents	22
Satisfaction with Reagents Offered for qPCR.....	23
qPCR Reagent Provider Rankings (1)	24
qPCR Reagent Provider Rankings (2)	25
qPCR Reagent Provider Rankings (3)	26
qPCR Reagent Provider Rankings (4)	27
qPCR Reagent Provider Market Share	28
Impressions of Real-Time Thermal Cycler Technologies	29
Interest in Purchasing New Real-Time Thermal Cyclers (1).....	30
Interest in Purchasing New Real-Time Thermal Cyclers (2).....	31
Real-Time Cycler Manufacturer Market Share	32
Summary of Survey Findings (2).....	33
Factors Influencing the Purchase of a New Real-Time Thermal Cycler.....	34
Real-Time Thermal Cycler Manufacturer Ratings	35
qPCR Assay Consumables Budgets.....	36
Breakdown of qPCR Consumables Assay Budget.....	37
qPCR Assay Consumables Market Estimates	38
qPCR Real-Time Cycler Budgets.....	39
Real-Time Cycler Market Estimates.....	40
Level of Automation Applied to qPCR Assays.....	41
Expected Future Change in Automation of qPCR Assays.....	42
Platforms Respondents Have Used for qPCR Assay Automation.....	43
Non-Contact Bulk Dispensing of qPCR MasterMixes.....	44
Factors Limiting Ability to Make Maximum Use of qPCR Instrumentation	45
Unmet Needs (Improvements Required) That Exist in qPCR Assays Today.....	46
Summary of Survey Findings (3).....	47

General Information on HTStec and HTStec's Trends Market Reports

- HTStec Limited an independent market research consultancy founded in September 2003 whose focus is on assisting clients delivering novel enabling platform technologies (liquid handling, laboratory automation, detection instrumentation and assay reagent technologies) to drug discovery and the life sciences. Over the past 5 years HTStec has published 36 market reports mainly on drug discovery technologies and authored 25 review articles in Drug Discovery World.
- HTStec's Trends reports owe their origins to the need by developers and vendors of new enabling technologies in drug discovery to get up-to-date relevant market metrics on which to base informed business decisions.
- Typically focused on a specific market niche or segment, in many cases overlooked or frequently misunderstood by broader market studies.
- Investigations are mainly initiated in response to a sponsor's specific requests.
- HTStec's extensive experience of the market, both as a Pharma End-User and working for a major Life Science Tool Provider ensures the industry relevance of the market research collected.
- Based entirely on web-based feedback from potential customers typically drawn mainly from Pharma and Biotech, although increasingly University and Research Institute labs are also being researched.
- Produced extremely rapidly and typically published within 3 weeks of starting the collection phase.
- Reports are short, concise and focused on giving readers the basic data, analyzed in several different ways.
- Limited to reporting the main findings alone, without exhaustive discussion on the relevance of the results.
- Market estimates are mainly based on bottom-up calculations and usually avoid attempts to forecast widely beyond the next 2-3 years. Full details on the derivation of market estimates are given so readers can apply their own factors and easily make alternative estimates if they prefer or know better.
- Owing to the sensitivity of some of the data collected, all reference to the origin of participating companies is removed, data is pooled to get an industry average and the anonymity of all respondents fully preserved and guaranteed.
- Unlike alternatives HTStec's Market Surveys and Report are aimed at giving readers, information they want and can rely on, not information they don't need, cannot easily discern or is of dubious authenticity.
- HTStec aims to be the premier global provider of highly focused market research on enabling technologies in drug discovery.
- To get information or to request free executive summaries of published reports please contact john.comley@htstec.com.
- HTStec Limited is a privately owned UK Company, registered in England and Wales Number 4875933.