qPCR Assay Trends 2010

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Conditions Under Which This Market Report Is Sold

Executive Summary

- This market report summarizes the results of HTStec's 2nd industry-wide global web-based benchmarking survey on real-time quantitative PCR (qPCR) assays and instruments carried out in April 2010.
- 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 is currently being 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 (2010) and in many cases as predicted for the future (2013): main type of qPCR activity; broad application focus of qPCR research; main reason to use qPCR in research; principal method for PCR detection and preferred chemistries; main origins and species source of nucleic acids quantified; interest in new & emerging qPCR applications, methods and/or techniques; number of qPCR reactions per run and per year; main qPCR assay format; average processing time per run; types of analysis performed; use of multiplexing; how qPCR reagents are purchased; volume of samples and reagents used per reaction; price of reagents and labware used per reaction; annual qPCR assay consumables budget and its breakdown into components and between suppliers; % wastage of master mixes; most important factors in the decision to purchase a vendor's qPCR reagents; types of real-time thermocyclers most used; satisfaction with real-time thermocycling equipment; real-time thermocycler manufacturer preference; annual real-time thermocycler CAPEX budget; new qPCR thermocycling instrument preferences and factors influencing that choice; level of automation applied to qPCR assays; automation platforms used, satisfaction with system and level of walk-away automation achieved; and what will most advance qPCR in the future.
- The main questionnaire consisted of 29 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 324 responses, of which 192 were subsequently excluded as did not meet our selection criteria. This left 132 validated survey respondents that met the selection criteria and gave input in the majority of questionnaire.
- All respondents met the following selection 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 thermocycler.
- Survey responses were geographically split: 39% Europe; 36% North America; 14% Asia (Excluding Japan); 10% Rest of World; and 1% Japan.
- Respondents came from 77 University/Research Institute/Not-for-Profit Facilities; 22 Biotechs; 9 Pharmas; 7 Hospitals/Clinics; 5 Contract Research Organisations; 5 Government/Military/Defense Facilities; 4 Others; and 3 Diagnostics Companies.
- Most survey respondents had a senior job role or position which was in descending order: 22 Research Scientists; 20 Post-docs; 14 Graduate Students; 14 Professors/ Asst. Professors; 13 Lab/Research Managers; 11 Sen. Scientists/ Research Associates; 11 Principal Investigators; 8 Section/Group Leaders; 7 Others; 6 Directors; 4 Presidents; 1 Department Head; and 1 Vice President.
- 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) Applied Research; 2) Basic Research; 3) Europe; and 4) North America.
- The main activity of the majority of survey respondents was basic research i.e. mainly running non-standard assays, with variable number of targets, and variable to large number of samples.
- The main application focus of the majority of respondent's qPCR research was gene expression.
- The main reason respondents were using qPCR research was expression profiling.
- The principal method of PCR detection used was real-time qPCR with SYBR Green and TaqMan probes the most used chemistries.
- The main origins of the nucleic acids quantified by qPCR were mRNA and DNA.
- The main species source for the nucleic acids quantified by qPCR was human.
- Fast PCR was the new or emerging qPCR application, method or technique most investigated today.
- A median of 96 qPCR reactions were processed per single run (i.e. per batch) today.
- A median of 5K-10K qPCR reactions were processed per lab in total per year (in 2010).
- The main qPCR assay format most used by respondents today was the 96-well PCR plate.

- The median typical processing time per qPCR reaction run today was 1.5h-2h.
- The type of analyses most preformed on real-time qPCR results today were relative quantitation and/or standard curve.
- Respondents reported a median of no qPCR reactions multiplexed today. Where multiplexing was used a median of 2 colors were multiplexed per reaction today.
- The most purchased qPCR assay reagent format today was individual reaction components sold separately in different tubes.
- The median sample volume for single qPCR reaction undertaken today was 2.5-5μL.
- The median total reagents volume for single qPCR reaction undertaken today was 10-25μL.
- The median labware cost per single qPCR reaction undertaken today was $0.50-$0.75.
- The median reagent cost per single qPCR reaction undertaken today was $0.75-$1.00.
- The median qPCR assay consumables budget was $10K-$25K per lab per year (in 2010).
- The greatest proportion of this qPCR assay consumables budget was spent on commercial qPCR master mixes.
- The greatest proportion of this qPCR assay consumables budget was spent with Life Technologies.
- A bottom-up model was developed to estimate the qPCR assay consumables market using respondent data derived from this survey. This market was estimated to be $930 million in 2010 of which around 33% is commercial qPCR master mixes. Growth estimates for 2013 are given.
- A median of 5% of qPCR master mixes were reported to be wasted or remain unused from a prefilled aliquot, plate well or tube today.
- Past experience was rated as the factor of greatest importance in a decision to purchase a particular vendor's PCR reagents.
- The majority of respondents make use of peltier thermal block type of real-time thermocyclers today.
- Overall respondent's level of satisfaction with thermocycling equipment was rated between acceptable and highly satisfied.
- The real-time thermocycler manufacturer most associated with all of a list of desirable characteristics or attributes was Life Technologies.
- The median qPCR real-time thermocycler CAPEX budget was $25K-$50K per lab per year (in 2010).
- The median number of units to be purchased with this planned CAPEX budget was one thermocycler.
- The median probability of purchasing a new qPCR thermocycler between 2011 and 2013 was moderate (25%-75%).
- A bottom-up model was developed to estimate the qPCR real-time thermocycler market using respondent data derived from this survey. This market was estimated to be around $313 million, equivalent to sales of around 3,100 units in 2010. Growth estimates for 2013 are given.
- The real-time qPCR thermocyclers respondents were most interested in purchasing over the coming years were Life Technologies ABI 7900HT, Roche Applied Sciences LightCycler 480 and Qiagen Rotor-Gene Q.
- Based on future purchasing preferences for real-time qPCR thermocyclers, it was estimated that Life Technologies currently have the greatest market share.
- Data quality expectations were rated as the factor most influencing respondent's purchase of a real-time thermocycler.
- Only 30% of respondents have applied automation to qPCR assays today (2010), but this is expected to increase in the future (2013). Current automation was mainly limited to small scale (<100 samples) automation of qPCR assay setup only.
- The platforms survey respondents have used for qPCR automation are tabulated, together with their satisfaction with these systems and the level of walk-away automation achieved. Automated platforms from Eppendorf, Life Technologies and Qiagen were the most used.
- Higher throughput/capacity instruments were ranked as the factor that will have greatest impact in advancing qPCR in the future.
- Respondent feedback on the unmet needs (improvements required) that exist in qPCR assays today are documented.
- The full report provides the data, details of the breakdown of the responses for each question, its segmentation and the estimates for the future (2013). It also highlights some interesting differences, particularly between the Applied Research and Basic Research survey groups.

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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. Over the past 7 years HTStec has published more than 50 market reports on drug discovery technologies and authored over 30 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 drawn mainly from Pharma and Biotechs, 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.
- 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.
- Critically HTStec's Trends reports have generated much interest and acclaim amongst survey respondents, to whom they are made available free of charge (subject to acceptance of HTStec's copyright terms) so they can benchmark their internal processes.
- 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.
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