

Multi-Mode Microplate Reader Trends 2011



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Executive Summary

- This market report summarizes the results of HTStec's industry-wide global web-based benchmarking survey on multi-mode microplate readers carried out in September 2011.
- The study was initiated by HTStec as part of its ongoing tracking of emerging life science marketplaces. The questionnaire was compiled to address the needs and potential interests of the microplate instrument vendor community. The main objectives of this global benchmarking study were to comprehensively document current end user opinions, practices and preferences of multi-mode microplate readers, and to understand future requirements. Unlike previous updates the focus of this 2011 report was more on what influenced purchasing and new application areas, and less on reader technical specifications and filter versus monochromator-based instruments.
- The survey looked at the following aspects of multi-mode (MM) plate readers as practiced today (2011) and in a few cases as predicted for the future (2014): current use of plate readers; vendor's MM plate readers in respondent's lab; vendor's MM plate readers respondents make greatest use of; number of MM plate readers in respondent's lab and average functional lifetime of readers; main application area where MM plate reader is most used; influence of brand on purchasing selection; preferred brand and whether respondent's had purchased an alternative brand of plate reader recently to their preferred brand; what influences the decision to switch brand; average price paid for a MM plate reader in the past 3 years; influence of price on a previous purchasing selection; willingness to consider an unknown brand if it offered equal performance and lower price to preferred brand; maximum price-point for a fully specified MM plate reader; use of common reader detection modalities; opinion on the adequacy of fluorescence intensity bottom-up read mode; use made of well injector(s) capability; effect of PerkinElmer's Enspire reader and Pharmadiagnostics' absorbance SPR on respondent's interest in using or adopting label-free; preferred future deployment/availability of label-free on MM plate readers; plate reader accessible assays/applications respondent's expect label-free to add most value; interest in adding different well imaging capabilities to a MM plate reader; assays which respondent's currently run on MM plate reader they would like to multiplex (correlate) with an image of the microplate well; effect of recent fluorescence lifetime (FLT) product developments on current level of adoption of FLT; assay applications where respondent's see FLT offering a unique advantage; interest in having FLT available on a mainstream MM reader; most used software data analysis tools (methods) available on a MM reader; main source of data analysis tools, when data processing is done and main calculation software used; is user field upgradeability of accessories and read modes a major concern; frequency of purchasing a MM plate reader; future plans to purchase a MM plate reader and expected budget allocation; preferred vendor's system choice of a new MM plate reader; MM plate reader vendor most associated with a list of desirable characteristics or attributes; and any unmet capabilities identified on MM plate readers today.
- The main questionnaire consisted of 28 multi-choice questions and 4 open-ended questions. In addition, there were 5 questions related solely to survey demographics.
- The survey collected 144 validated responses, of these 74% provided comprehensive input.
- Survey responses were geographically split: 47% Europe; 37% North America; 9% Asia (excluding Japan); 4% Japan; and 3% Rest of World.
- Survey respondents were drawn from persons or groups using MM plate readers today in their routine work.
- Respondents came from 65 University/Research Institute/Government Lab (Not-for-Profit) Facilities; 26 Biotech; 16 Large Pharma; 9 Medium-Small Pharma; 9 Academic Screening Centers; 6 Hospitals/ Clinical Research Facilities; 6 Contract Research Organizations; 4 Others; and 3 Diagnostic Companies.
- Most survey respondents had a senior job role or position which was in descending order: 32 research scientists; 24 senior scientist/researchers; 15 section/group leaders; 14 directors; 13 professors/assistant professors; 12 principal investigators; 11 others; 10 post-docs; 10 lab managers; and 3 department heads.
- Respondents represented the following lab types: 46 applied research; 21 basic research; 21 assay development; 20 labs with a combination of drug discovery roles; 14 primary screening; 9 other; 6 hits-to-leads (lead optimization); 3 leads-to-candidate (ADME tox/preclinical research); 3 secondary screening; and 1 therapeutic areas (target identification/validation).

- Survey results were expressed as an average of all survey respondents. In addition, where appropriate the data was fully reanalyzed after sub-division into the following 5 survey groups: 1) Pharma; 2) Biotech; 3) Academic Research; 4) Europe; and 5) North America.
- Most respondents were using MM plate readers frequently or all the time.
- The MM plate reader most frequently found in respondent's lab was from Molecular Devices.
- The MM plate reader most used in respondent's labs was from PerkinElmer.
- A median of 2 MM plate readers were found in each respondent's lab.
- The median average functional lifetime of MM plate reader was 8 years.
- The application area where respondent's MM plate readers were most used was cell biology.
- Most respondents reported brand had a moderate influence on a purchasing selection.
- 35% of respondents did not have a preferred MM plate reader brand (manufacturer).
- The majority had not purchased a plate reader from a manufacturer other than their preferred brand. Details of where MM reader brands had been recently switched are given.
- Access to a new functionality or readout mode was ranked what most influenced a decision to purchase a reader other than a preferred brand.
- Most respondents reported price had a moderate influence on a purchasing selection.
- Most respondents indicated that they may purchase an unknown brand of MM plate reader if it offered equal performance but at a lower price.
- The median average price paid for a MM plate reader over the past 3 years was \$25K-\$50K.
- The median price-point above a fully specified MM plate reader would not be purchased was \$50K.
- Absorbance and fluorescence intensity were the most used MM plate reader detection modalities.
- Opinion on aspects of fluorescence intensity (bottom up) read mode was that overall it was adequate.
- Opinion on the use of injectors on MM plate readers was that the majority had not purchased them; of those that have purchased them, most have never used them or used them very rarely.
- The effects of the availability of PerkinElmer's Enspire MM plate reader and Pharmadiagnostics absorbance-based SPR on respondent's views on the future of label-free were rated.
- Opinion on the future deployment/availability of label-free on MM plate readers was mixed.
- Respondent feedback on MM plate reader accessible assays/applications where they expect label-free will add most value was documented.
- Interest on adding a well imaging capability to a MM plate reader was moderate.
- Only a minority of respondents have had their interest in fluorescence lifetime stimulated by recent developments/advances in the area.
- Automatic background/baseline correction was rated as the most used software data analysis tool available on a MM plate reader.
- The main source of software data analysis tools used were tools offered within the reader software.
- The majority of reader data processing is done off-line on a different computer within the organization.
- The main data calculation software used was Excel (MicroSoft) and PRISM (GraphPad).
- Most respondents do not find field upgradeability on a MM plate reader a major concern.
- The average median purchasing frequency for a new MM plate reader was every 4-5 years. 50% of purchasing decisions were related to the need to replace an aging or unreliable reader.
- A median budget of \$25K - \$50K was allocated for spending on a new MM plate reader in 2011.
- A bottom up model was developed to estimate the global market for MM plate readers, using data on the purchasing trends derived from this survey. The total market was estimated to be around \$56M in 2011, equivalent to sales of about 1,400 MM plate reader units per year.
- Greatest interest was expressed in purchasing PerkinElmer's EnVision AlphaPlus MM plate reader.
- Perkin Elmer and Molecular Devices equally shared the greatest % of the MM plate reader market.
- PerkinElmer and Molecular Devices were the with MM plate reader manufacturers/vendors most chosen against a list of desirable characteristics/attributes.
- A few unmet needs in the area of MM plate reader capabilities were highlighted.
- The full report provides the data, details of the breakdown of the responses for each question, its segmentation and the estimates for the future (2014). It also highlights a few interesting differences between the survey groups, particularly Pharma and Academic Research.
- Please note this report is focused exclusively on MM plate readers. It does NOT include or report on SINGLE mode plate readers (e.g. absorbance only readers or specialty micro-volume readers), or MM plate imagers (e.g. PerkinElmer ViewLux, Molecular Devices FLIPR or Hamamatsu FDSS).

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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 8 years HTStec has published more than 70 market reports on drug discovery technologies and authored over 35 review articles in Drug Discovery World (at least one article per issue).
 - 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.
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