

ELISA Trends 2010



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Executive Summary

- This market report summarizes the results of HTStec's industry-wide global web-based benchmarking survey on enzyme-linked immunosorbent assays (ELISA) carried out in August 2010.
- The survey was initiated by HTStec as part of its tracking of emerging life science marketplaces. The questionnaire was compiled to meet the needs, requirements and interests of the ELISA vendor community. The objective was to comprehensively document current practices and preferences in ELISA assays, and to understand future user requirements. Equal emphasis was given to soliciting opinion from all organizations where ELISA assays are currently being applied, with no geographic bias in the distribution of persons contacted.
- The survey looked at the following aspects of ELISA assays, as practiced today (2010) and in many cases as predicted for the future (2013): main application areas of ELISA research; ELISA activities typically run in respondent's lab; target classes investigated by ELISA; main sample sources analyzed; enzyme/detection chemistry most used; level of automation applied; interest in acquiring an ELISA workstation and preferred automation vendors; type of plate washer used and preferred washer manufacturer; number of ELISA plates typically run per week, per month and per year; maximum ELISA throughput achieved and wanted; microplate format used; the need for commercially available ELISA kits to be offered in miniaturized formats; final assay volume; proportion of the ELISA assays that are self-built; average time it takes you to develop an ELISA; how many different ELISAs are developed per year; main advantages and disadvantages of using an ELISA format; average cost per single assay (well); price paid for ELISA kits; annual budget for ELISA assay consumables and kits, and the breakdown of that budget into kits and assay components; most important factors in the decision to purchase a particular vendor's ELISA kit; main supplier of ELISA kits purchased; biggest issues (problems) with ELISAs today; relevance of ELISAs today or are there new emerging or alternatives technologies which will replace it; and the use of multiplexing and number of different analytes multiplexed.
- The main questionnaire consisted of 26 multi-choice questions and 3 open-ended questions. In addition, there were 6 questions related solely to survey demographics.
- The survey collected 120 validated responses, of these 73% provided comprehensive input.
- Responses were geographically split: 43% North America; 32% Europe; 17% Asia (Excluding Japan); 7% Rest of World; and 1% Japan.
- Survey respondents were drawn from persons or groups interested in immunoassays and biomarkers, were end-users of ELISA and met the following criteria: 1) were currently undertaking ELISA assays; & 2) make or influence purchasing decisions for ELISA kits or related assay components.
- Respondents came from 50 University/Research Institute/Not-for-Profit Facilities; 22 Biotechs; 12 Pharma; 9 Hospitals/Clinics; 8 Contract Research Organisations; 7 Diagnostics Companies; 7 Government/Military/Defense Facilities; 4 Others; and 1 Agrochemical Company.
- Most survey respondents had a senior job role or position which was in descending order: 26 research scientists; 14 senior scientists/research associates; 14 principal investigators; 14 professor/assistant professors; 11 lab/research managers; 10 others; 6 graduate student; 6 section/group leaders; 6 directors; 5 department heads; 4 presidents; 2 post-docs; and 2 vice-presidents.
- Respondents were segmented on the basis of their ELISA activity with 46% undertaking applied research, 32% basic research and 23% routine testing.
- 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) Basic Research; 2) Applied Research; 3) Routine Testing; 4) Europe; and 5) North America.
- The main application area for respondents ELISA assays was immunology.
- The target class respondents were most interested in being setup and run in ELISA format was cytokines and chemokines.
- The main sample source analyzed by ELISA was serum.
- The enzyme/detection chemistries most used today was HRP-colorimetric.
- Only 11% of respondents have applied full automation to their ELISA assays today.
- 54% of respondents were interested in acquiring an ELISA workstation over the coming years.
- The preferred automation vendors for an ELISA workstation were BioTek and Tecan
- Most respondents were using a 96-well whole plate washer for their ELISA assays.
- BioTek was the preferred manufacturer for an ELISA washer.

- The median number of 96-well ELISA plates run per week was 10.
- The median maximum ELISA throughput achieved per 8h day was five 96-well plates.
- 91% of respondents are using the 96-well microplate format for their ELISA assays today.
- Most respondents did not see the need for commercially available ELISA kits to be miniaturized, indicating that the standard volume 96-well format meets their current requirements. Of those seeking miniaturization, the microchannel 96-well format (e.g. Siloam Biosciences) was preferred.
- The median final assay volume for ELISA assays today was 50µL to 100µL.
- A median of 35% of respondents ELISA assays are self-built.
- The median ELISA assay development time was <1 month.
- A median of 2 ELISA assays are developed per lab per year.
- Well established and proven technology was ranked as the main advantage of ELISA assays.
- Insufficient sensitivity compared to emerging assay technologies was ranked as the main disadvantage (limitation) of ELISA assays.
- The median cost per single assay (well) for ELISA today was \$1-\$2.5.
- The median average price paid per ELISA kit of 96-wells was \$300-\$400.
- The median maximum price respondents want to pay for an ELISA kit of 96-wells of relevance to their research was \$250-\$300.
- The median annual ELISA assay budget per lab per year today was \$10K-\$25K.
- The greatest proportion of the annual ELISA assay budget was spent on ELISA assay kits, followed antibodies, and then microplates for use in ELISA assays.
- A bottom-up model was developed around the respondent's annual budget for ELISA assay consumables and kits to estimate the global market. The ELISA assay market was estimated to be around \$250M in 2010, of which nearly half is assays kits. The market was segmented by ELISA activity (basic research, applied research or routine testing) and geography (North America or Europe). CAGR estimates for 2013 were made for the market segments.
- Specificity (i.e. cross-reactivity & interference with related analytes) was rated as the factor of greatest importance in a decision to purchase a vendor's ELISA kit.
- The main (most used) supplier of ELISA assay kits purchased by respondents was R&D Systems.
- Increasing sensitivity was ranked as the biggest issue (problem) with ELISA assays today.
- Most respondents thought ELISA was still relevant in its established formats today. However, a small minority thought ELISA had new relevance with PerkinElmer's AlphaLISA bead-based homogenous no-wash format.
- A median of no ELISA assays were multiplexed today i.e. the majority are based on 1 analyte per ELISA assay.
- Respondent feedback on: 1) improvements wanted to current ELISA capabilities/performance; 2) key things they are looking for when considering moving from ELISA to an alternative format; and 3) ELISA kits they would you like to see available i.e. perceived gaps in current commercial ELISA offerings; are documented.
- The full report provides the data, details of the breakdown of the responses for each question, its segmentation and some estimates for the future (2013). It also highlights some interesting differences, particularly between 'routine testing' versus the other survey groups.
- PLEASE NOTE this market report focuses on ELISAs that are entirely microplate-based, it covers ELISAs that are linked to some non-enzymatic reporters and those that are homogenous (no-wash). However, microparticle-based immunoassay methods (e.g. Luminex) that remove samples from microplates and utilize flow-based detection were NOT covered or discussed in this analysis.

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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 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.
- 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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