

required to determine whether the *A2M**2 deletion is pathogenic or in disequilibrium with another mutation. We urge additional exploration of the relationship between *A2M* and AD in other family samples and more definitive studies of the biological role of *A2M* in AD.

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Distribution and early development of microarray technology in Europe

With interest, we read a review in *The Chipping Forecast*¹ on options available for obtaining expression data using microarrays. It provided a detailed listing of all distributors of biological or technical material related to this expanding field of gene technology in the United States. Although American providers of minimal EST clone sets and high-density filters were discussed, several public organizations within Europe that create and distribute standardized reference material for genome research—while indicated on a listed internet site—were not discussed in detail.

The first systematic use of reference libraries spotted in microarrays onto membranes was introduced by a European laboratory, the Genome Analysis group at the Imperial Cancer Research Fund in London. Already in the late 1980's, robotic tools were used to produce such high-density microarrays in large quantities and experimental procedures for their use in genome analysis were developed. These included experiments for fingerprinting and partial sequencing by oligo hybridization^{2–6}, integrated genome analysis^{7–10}, hybridization high-density screening^{11–15}, high-resolution mapping¹⁶ and expressed sequence catalogues^{17,18}. At that time a distribution service for such high-density filters and clones from reference libraries, the Reference Library System (RLDB), was also established and used by many laboratories worldwide¹⁹.

One of the biggest institutions in Europe to distribute biological materials like microarrays is the successor of the RLDB, the Resource Centre (RZPD) of the German Human Genome Project (DHGP), which offers several of the products that are described in detail in David Bowtell's review. The Resource Centre is a non-profit organization founded by the Federal

Ministry of Education, Science, Research and Technology (BMBF) for the support of genome research and is maintained by the Max-Planck-Institute for Molecular Genetics, Berlin, and the Deutsches Krebsforschungszentrum, Heidelberg.

The Resource Centre constructs new clone libraries, collects available libraries and copies and distributes them as high-density spotted hybridization filters or clone pools for PCR screening. The experimental data obtained by the users are included in the Primary Database operated by the centre. This concept enhances the exchange of data and information in the scientific community and is widely accepted, as more than 4,500 registered customers from academia and industry from all over the world request biological material and information.

The Resource Centre is one of two official European distributors of IMAGE clones. It distributes them not only as single clones and on high-density filters but also offers the RZPD Human Unigene Set, with 33,000 unique IMAGE clones selected on the basis of the Unigene Cluster 102 (National Centre of Biological Information, NCBI). All clones integrated into this gene set are free of T1 phage contamination. This is guaranteed by an assay system that was developed at the Resource Centre and then transferred to other centres and companies. All clones are also free of contamination by other microorganisms as determined by a unique in-house test system.

As a non-profit organization, the Resource Centre charges prices only to recover the costs for producing its materials. Clones from the IMAGE collection and the RZPD Human Unigene Set can be ordered for DM 40 (~\$24) per clone. A set of two high-density clone filters for expression studies with lysed colonies is available

for DM 1,340 (~\$800), whereby a certain number of clones identified by screening RZPD filters are free of charge. A screening service is also available. Filters with PCR products are in preparation. A similar RZPD Unigene Set for mouse and rat is currently in development. It is planned to distribute glass microarray slides for more detailed expression analysis.

The Resource Centre can be contacted by e-mail (info@rzpd.de) or fax (+49 30 32639111). For details of materials and services offered, registration and request forms, as well as up-to-date prices, see the RZPD web site (<http://www.rzpd.de>).

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