

## ***Method for in vitro memory B lymphocyte expansion and polyclonal IgG production***

**Application:** Long-term *in vitro* expansion of memory B lymphocytes and **production of immunoglobulin G (IgG)** for diagnostic or therapeutic applications.

**Commercial interest:** Biopharmaceutical, immunology, immunotherapy and cellular therapy companies.

**Summary:** This technology refers to a method for selecting populations of memory B lymphocytes (IgG<sup>+</sup>IgM<sup>-</sup>IgD<sup>-</sup> and IgA<sup>+</sup>IgM<sup>-</sup>IgD<sup>-</sup>) that are substantially depleted of naïve B lymphocytes (IgM<sup>+</sup> and/or IgD<sup>+</sup>). Culture of the selected B lymphocytes in the presence of a source of CD40 ligand and appropriate cytokines allow **long-term (≥ 60 days) expansion of the cells**; after 60 days of culture, fold expansion is at least 10<sup>6</sup>, and can reach 10<sup>9</sup> if culture is extended to 70 days. **Cellular viability** remains above 80% throughout the culture period. This system allows the **production of polyclonal immunoglobulins** composed of at least 70% IgG, while IgM content does not exceed 10%. Given the high immunoglobulin secretion rate of the cells grown according to this method, final IgG concentrations in the culture supernatant reach at least 10 µg/ml. The relative proportions of the different Ig classes and subclasses are very similar to those of human plasma and of commercial preparations of therapeutic immunoglobulins. Additionally, the resulting memory B-lymphocyte populations could be used for the derivation of B-cell clones of desired specificity, as well as for the preparation of professional antigen-presenting cells for cellular therapy applications.

**Intellectual Property:** The following patents have been granted: CA 2,738,176, and US 8,703,486. A patent is pending in Europe.

**Owned by:** Héma-Québec (Saint-Laurent, QC), and Université Laval (Québec, QC), CANADA.

Information about this technology for licensing purposes can be obtained from:

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