

Pharmacokinetic (PK) ELISA Antigen Capture Format

PK – Ranibizumab

For Use with Anti-Ranibizumab Monoclonal Antibodies catalog #HCA304, #HCA306 or #HCA307

This method provides a procedure for carrying out a PK ELISA Antigen Capture Format with Anti-Ranibizumab Antibody, #HCA304, #HCA306, or #HCA307 (detection antibody), and using ranibizumab for the standard curve. Anti-Ranibizumab/VEGF Antibody #HCA304 recognizes ranibizumab only when bound to its target VEGF. It does not recognize the free drug or unbound VEGF. Anti-Ranibizumab Antibodies #HCA306 and #HCA307 are non-inhibitory anti-idiotypic antibodies that bind to ranibizumab, but do not inhibit the binding of ranibizumab to VEGF. The method should always be used in conjunction with product and batch specific information provided with each vial (see product datasheets). This protocol will need to be adjusted for use with different detection methods and immunoassay technology platforms.

Reagents

- BSA
- HISPEC Assay Diluent (#BUF049)
- Human Serum (Sigma-Aldrich, #H4522)
- PBS
 - 136 mM NaCl
 - 2.68 mM KCl
 - 8.1 mM Na₂HPO₄
 - 1.46 mM KH₂PO₄
- PBST
 - PBS with 0.05% Tween 20
- QuantaBlu Fluorogenic Peroxidase Substrate (Thermo Fisher Scientific, #15169)
- Recombinant Human VEGF Protein (#PHP293)
- Anti-FLAG M2-Peroxidase (HRP) Antibody (Sigma-Aldrich #A8592)

Materials

- 384-well microtiter plate, black, square flat-bottom wells, for example, Black 384-Well Immuno Plates (Thermo Fisher Scientific, #460518)
- Fluorescence plate reader

96-well plates can be used instead of 384-well plates, (black, flat-bottom wells) for example, Black 96-Well Immuno Plates (Thermo Fisher Scientific, #437111). For the 96-well format, use 100 µl (instead of 20 µl) of antigen, antibodies, or substrate and 300 µl for the blocking step.

Method

1. Prepare Recombinant Human VEGF Protein (capture antigen, #PHP293) at 5 µg/ml in PBS. Coat the required number of wells of a 384-well microtiter plate with 20 µl per well of the prepared capture antigen. Incubate overnight at 4°C.
2. Wash the microtiter plate five times (5x) with PBST.
3. Block the microtiter plate by adding 100 µl 5% BSA in PBST to each well, and then incubate for 1 hr at RT.
4. Wash the microtiter plate 5x with PBST.
5. For the standard curve, prepare a dilution series of ranibizumab in 10% human serum in PBST in triplicate. Final concentrations of ranibizumab should cover the range from 0.05 ng/ml to 2,000 ng/ml. Include a zero ranibizumab concentration as the background value.
6. Add 20 µl of each of the diluted standards to the wells designated for the standard curve (in triplicate for each standard recommended). Add 20 µl of each test sample to the other wells (in triplicate for each sample recommended). Incubate for 1 hr at RT.
7. Wash the microtiter plate 5x with PBST.
8. To each well, add 20 µl Human Anti-Ranibizumab Antibody #HCA304 (AbD29928), #HCA306 (AbD29858), or #HCA307 (AbD29865) at a concentration of 2 µg/ml in PBST buffer. Incubate for 1 hr at RT.
9. Wash the microtiter plate 10x with PBST.
10. To each well, add 20 µl Anti-FLAG M2-Peroxidase (HRP) Antibody at a 1:20,000 dilution in HISPEC Assay Diluent. Incubate for 1 hr at RT.
11. Wash the microtiter plate 10x with PBST.
12. Add 20 µl QuantaBlu Fluorogenic Peroxidase Substrate to each well and measure the fluorescence after 30 min.

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