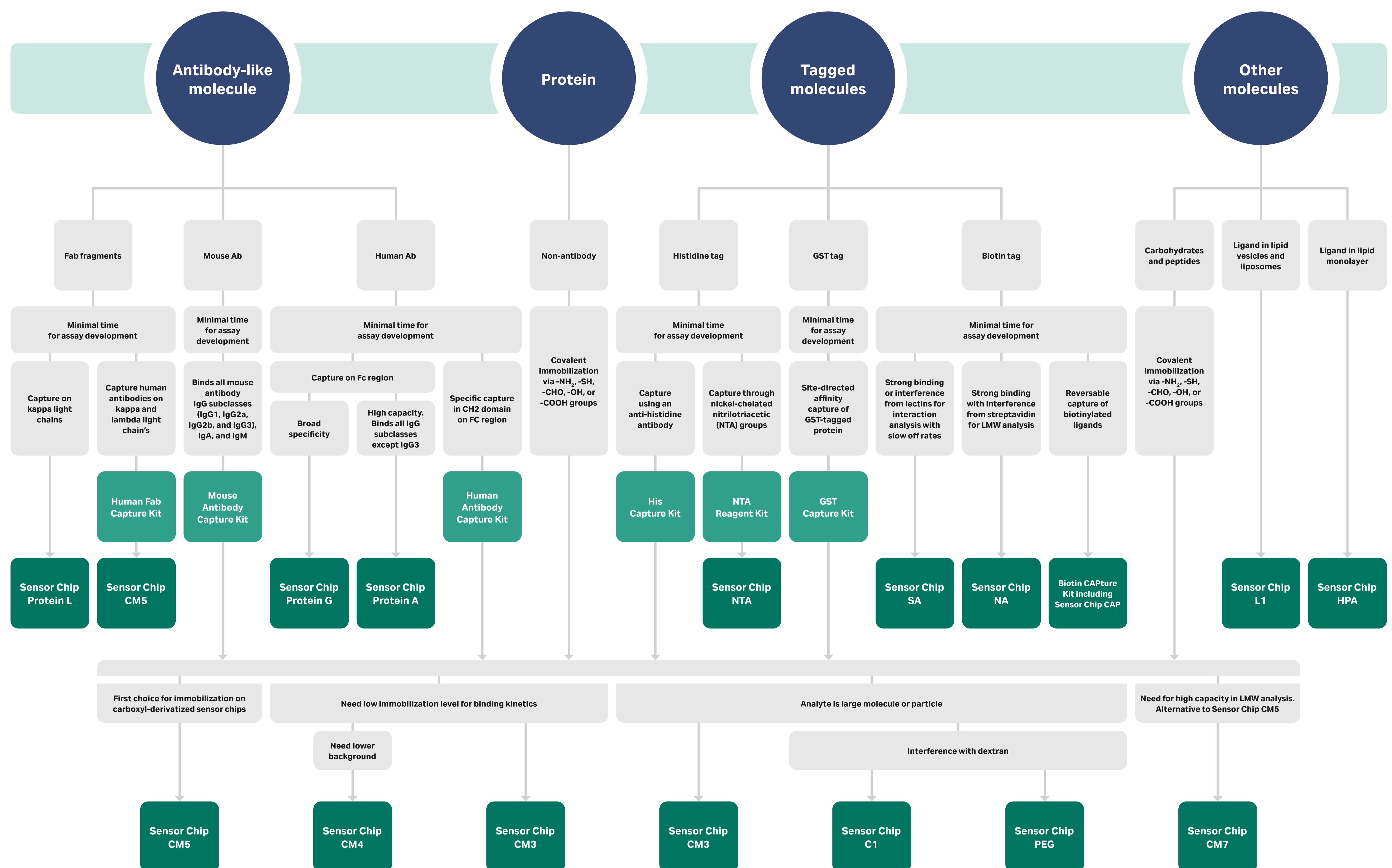


How to choose a suitable attachment approach for your ligand

Save time and effort for your Biacore™ SPR interaction analysis study



Terminology

- **Ligand:** the interaction partner attached to the surface.
- **Analyte:** the interaction partner in solution passed over the attached ligand.
- **Capture molecule:** the binding partner attached to the surface for easy attachment of ligand of interest.
- **Prefunctionalized surface:** the binding partner immobilized to the surface for easy assessment of analyte binding.

Sensor chip formats

- Sensor chip classic format are designed for Biacore X100, Biacore 3000, and Biacore C SPR systems.
- Series S Sensor Chip are for use with Biacore 8K+, Biacore 8K, Biacore S200, Biacore T200, and Biacore 4000 SPR systems.



Which molecule to attach to the surface?

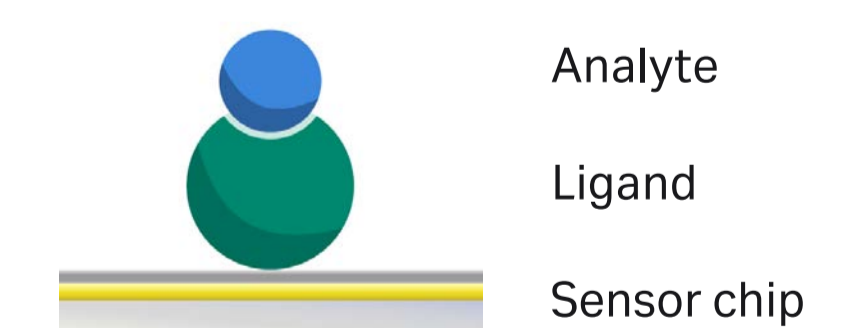
- **Take advantage of affinity tags** that are present on your molecule.
- **Valency:** attach the interactant with most binding sites to avoid avidity problems.
- **Molecule amount:** attach the interaction partner with lowest amount to save reagents.
- **Molecule purity:**
 - Prefunctionalized/capture surfaces: no specific purity consideration needed.
 - Direct coupling: attach the purest interactant to ensure specific binding interactions.
Note: cross-reactivity examination /consideration is always needed in interaction analysis experiments
- **Molecular weight:** avoid attachment of very large (relative molecular mass, $M_r > 1\,000\,000$) or small ($M_r < 500$) molecules. If significant difference in molecular weight of interacting proteins, attach the smaller protein molecule.

Direct immobilization or capture approach?

Covalent direct attachment advantages

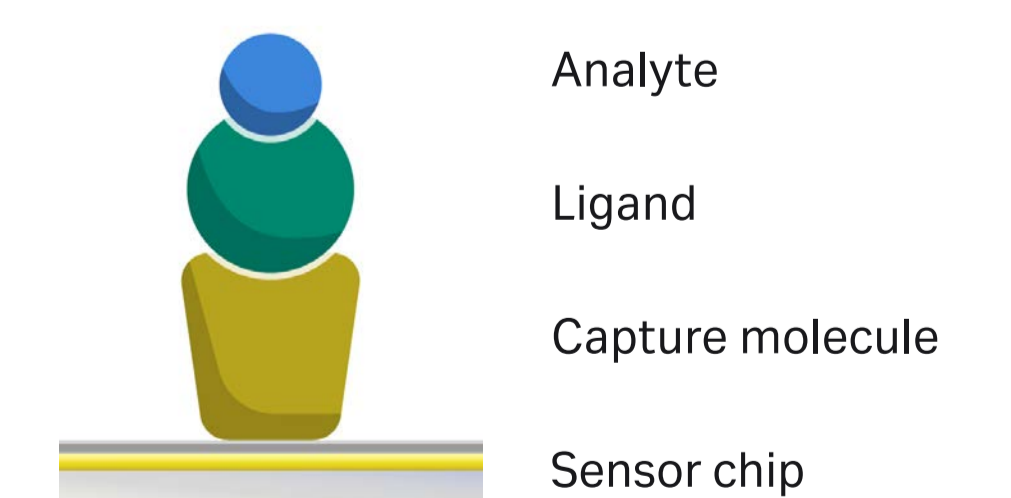
- Consumes less ligand
- Higher binding capacity
- Very stable immobilization with no leakage
- Shorter cycle times

Examples: Amine coupling, Ligand-thiol coupling, Surface-thiol coupling, Maleimide coupling, Aldehyde coupling



Capture-based attachment advantages

- Orientation-specific attachment
- Selective capture of ligand from crude samples
- Simpler assay development (regeneration is independent of the captured molecule¹)
- Interactant on the surface is easily changed¹
- For ligands that are difficult to immobilize or regenerate
- For unstable ligands



Examples: see selection guide above.
¹ Except for streptavidin/biotin due to the extremely high affinity

cytiva.com

Cytiva and the Drop logo are trademarks of Global Life Sciences IP Holdings LLC or an affiliate. Biacore is a trademark of Global Life Sciences Solutions USA LLC or an affiliate doing business as Cytiva. The NeutrAvidin™ in Sensor Chip NA is sold with permission from Pierce Biotechnology, Inc. The transfer of this product is conditioned on the buyer using the purchased product solely for research purposes. The buyer must not (1) use this product or its components for diagnostic, therapeutic or prophylactic purposes; and/or (2) sell or transfer this product or its components for resale, whether or not sold for use in research. NeutrAvidin is a registered trademark of Pierce Biotechnology, Inc. For information on purchasing a license to this product for purposes other than as described above, contact Thermo Fisher Scientific Inc., 5781 Van Allen Way, Carlsbad, CA 92008 USA or outlicensing@thermofisher.com. All other third-party trademarks are the property of their respective owners. © 2020 Cytiva. All goods and services are sold subject to the terms and conditions of sale of the supplying company operating within the Cytiva business. A copy of those terms and conditions is available on request. Contact your local Cytiva representative for the most current information. For local office contact information, visit cytiva.com/contact.

CY12475-02Jul20-PO

cytiva