

Pursuing a Healthier World By Creating Tomorrow's Science Today.

At Fortis Life Sciences, we offer world-class products and services coupled with a best-in-class customer experience. Our portfolio includes solutions for diagnostics manufacturers, researchers, and biopharma customers.

Read More



FORTIS. FOR

Diagnostic Manufacturers Biopharma Customers

Researchers

Diagnostic **Manufacturers**

Read More





manufacturing diagnostic raw materials and assays, we can accelerate your journey in commercializing immunological and molecular point-of-care or clinical tests. Our industry leading portfolio of quality diagnostic raw materials,

With unmatched expertise in developing and

such as enzymes and antibodies and nanoparticle probes, can be used to develop and manufacture diagnostic tests. With the guidance and support from our scientific team, raw materials can also be custom formulated, or complete assays can be custom designed to meet the exact specifications of your assay. Our GMP manufacturing sites are ISO 13485:2016 Certified and FDAregistered.



Brands





mixes for immunological and molecular assay development and manufacturing Contract development and manufacturing services

Antibodies, nanoparticles, conjugates, enzymes, and master

of-care and clinical testing applications

supporting the development and commercialization of point-

Highlights

Antigens and Gold Development & Conjugates Manufacturing Services Custom Reagents and Gold Nanoparticle Probes Services for Molecular

Services

Custom Lyophilization

Lateral Flow Assay

Bulk Antisera for Clinical Chemistry

Lateral Flow Antibodies,

Diagnostics



Development & Manufacturing Services At Fortis, we offer full-service lateral flow assay

development and specialize in the design and

Lateral Flow Assay

manufacturing of highly-sensitive quantitative diagnostic assays. Our services span all phases of the development cycle, from feasibility to manufacturing. We also offer industry-leading technologies for increasing assay sensitivity as well as starter kits to help you build and optimize your lateral flow assay. https://www.fortislife.com/lateral-flow-assay-productsservices

FEASIBILITY

Design inputs

INITIATE DESIGN CONTROLS

COMMERCIAL MANUFACTURING

 Reagent selection Proof-of-concept assay

• Cassettes, readers. sample prep Design freeze & prototypes

Assay optimization

DEVELOPMENT

 Draft batch records • 3 engineering lots Verification testing

VERIFICATION

• Release batch records Scaled-up manufacturing Manufacture validation lots

VALIDATION



COMMERCIALIZATION

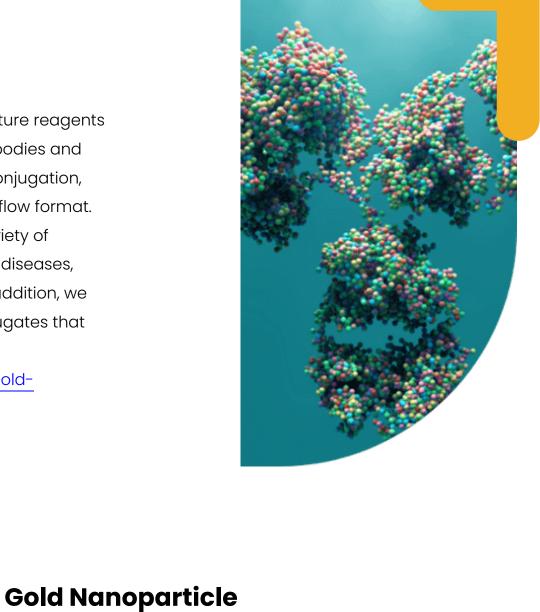
Conjugates At Fortis, we design, develop and manufacture reagents including monoclonal and polyclonal antibodies and

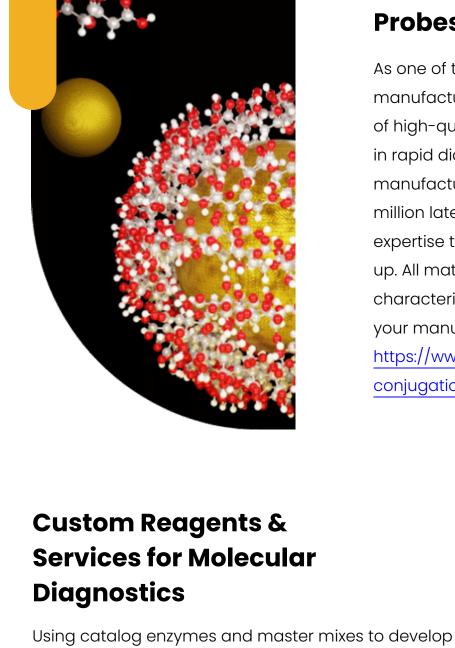
Antigens and Gold

Lateral Flow Antibodies,

and custom assay development in lateral flow format. These reagents can be used for a wide variety of research applications, including infectious diseases, drug abuse, fertility issues, and cancer. In addition, we also have an extensive range of gold conjugates that can be used for lateral flow. https://www.fortislife.com/lfa-antibodies-goldconjugates

antigens and offer consultation, custom conjugation,





manufacturers, we provide standard and bulk volumes of high-quality gold colloid and gold nanoshells for use in rapid diagnostic tests. Our facilities can support

Probes

manufacturing particle volumes corresponding to 30-50 million lateral flow strips per month. We have the expertise to help you with particle and conjugate scale up. All materials are delivered with Fortis's extensive characterization data, ensuring consistent quality for your manufacturing needs. https://www.fortislife.com/bulk-nanoparticlesconjugation-kits

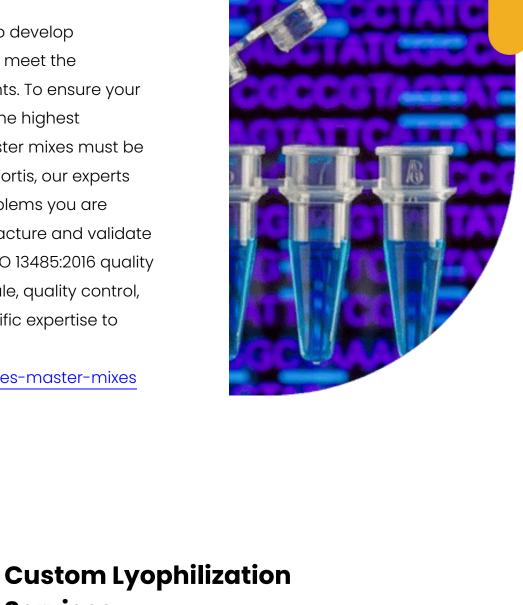
As one of the world's largest gold nanoparticle

demands of your specific assay requirements. To ensure your molecular diagnostic assay performs with the highest efficiency and specificity, enzymes and master mixes must be

molecular diagnostic assays will not always meet the

custom formulated with quality in mind. At Fortis, our experts

collaborate with you to understand the problems you are trying to solve, and design, optimize, manufacture and validate molecular reagents and assays under an ISO 13485:2016 quality system. Whether you need to customize scale, quality control, formulation, or enzymes, we have the scientific expertise to meet your needs. https://www.fortislife.com/gmp-bulk-enzymes-master-mixes





For over ten years, companies have trusted us to provide

suboptimal performance.

Services

molecular diagnostic reagents that require lyophilization. The way we manufacture reagents and enzymes ensures they are lyo-friendly by design. We understand biology, chemistry, manufacturing

processes, and requirements to make your reactions

Optimizing reagent formulations for molecular assays

air-dried format of the same chemistry can result in

and then expecting the same results with a lyophilized or

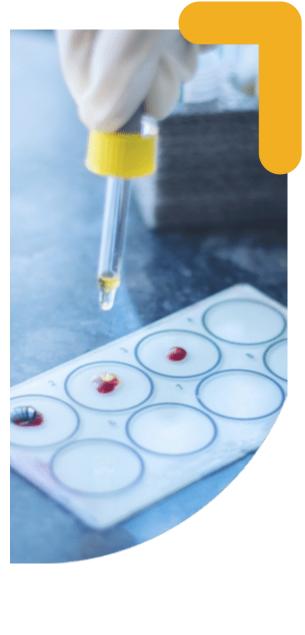
work. That means your lyophilized or air-dried product will perform to your exact specifications. https://www.fortislife.com/lyo-ready-air-dryable

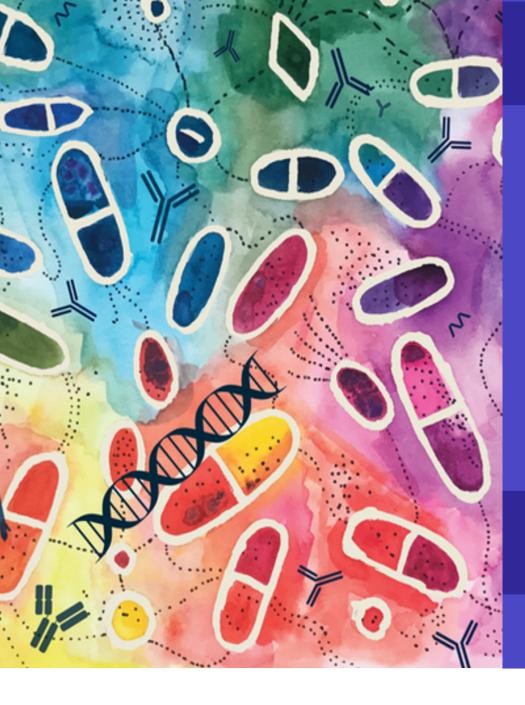
Having the right high-quality antisera for in vitro diagnostic or turbidimetry immunoassays can mean the difference between success or failure, potentially costing you time and resources. When selecting a reliable partner for your custom or bulk antisera requirements, it matters how and where your antisera are manufactured. The way we generate antisera makes all the difference. Whether you need raw antisera, IgG fraction, or affinitypurified plasma. Under our vertically integrated operations, our antisera are manufactured to exacting standards and quality controlled by our team of

scientists at our United States facility. The following product types are available in multiplegram and liter scales to support bulk needs, including tailored conjugation, and can be tailored to meet your

- application-specific technical requirements:
- IgG Fractions Affinity Purified Antibodies
- Secondary Antibodies Purified Proteins

All bulk order requests can be altered to your application-specific technical requirements, ensuring customized formulations and competitive pricing. https://www.fortislife.com/bulk-antisera







Read More



development, and manufacturing services.

At Fortis, we offer biopharma customers a range of discovery,

polyclonal and recombinant monoclonal antibody services support your early-stage research for therapeutic development. In addition to antibody and nanobody discovery, custom nanomaterials can be synthesized and manufactured under GMP for nanomedicine applications.

Our vertically integrated nanobody discovery process and custom

Brands







Services

delivery, theranostics, photothermal therapeutics, and gene therapy Custom nanobody discovery services and recombinant

monoclonal antibody development enabling therapeutic

Contract development and manufacturing services enabling

the use of nanoparticles in nanomedicine for targeted drug

discovery and development

Highlights



Solutions for Nanomedicine and

and Targeted **Drug Delivery**

Solutions for

Nanomedicine

synthesis and manufacturing techniques provide solutions for the rapid development and commercialization of medical devices and therapeutic products. Our expertise covers a range of services for targeted delivery, photothermal therapy, biofunctionalization and more. Our CDMO services include: • **Research**: Proof-of-Concept Synthesis &

There are many nanomaterial companies and

specialize in both. Our proprietary nanoparticle

many GMP manufacturers but very few that

Characterization

- **Development**: Optimization, Scale-Up, Process & Validation Development
- cGMP Production: Transfer to & Scaled Manufacturing
- Our proprietary nanoparticle manufacturing techniques provide solutions for the rapid development and commercialization of medical devices and therapeutic

products. With our diverse expertise in nanoparticle fabrication targeted delivery,

cGMP Production

controlled-release, photothermal therapy, and biofunctionalization, we help partners bring high impact nano-enabled products to market. Our expertise covers a range of services for targeted delivery, photothermal therapy, biofunctionalization and more. GMP Nanomaterial Synthesis & Manufacturing Our facility offers cGMP/ISO13485 compliant production and provides scaled nanoparticle manufacturing for medical devices, topical therapeutics, and combination (drug/device) products for preclinical and Phase I/II clinical trials.

implements stage-appropriate controls required for FDA compliance while minimizing project time and costs. For nearly 20 years, our team has been developing innovative solutions to meet the

specific product requirements of our customers in fields ranging from nanomaterial

For each customer, we collaboratively develop a GMP manufacturing plan that

Cleanroom spaces are designed to accommodate projects that range from early

stage feasibility to scaled production of clinical injectables

for commercial launch of nano-enabled products.

manufacturing to medical diagnostics. We specialize in cGMP-compliant fabrication of inorganic nanomaterials, including metal and metal oxide coreshelled materials. For each customer, we collaboratively develop a GMP manufacturing plan that implements stage-appropriate controls required for FDA compliance while minimizing project time and costs. We also have experience with controlled release nanoparticles made from polymers such as PLGA. Past projects have included novel custom nanoparticle

fabrication, manufacturing scaling from mg to kg scales, and collaborative custom development projects where we solve R&D and manufacturing scale-up challenges

Our lab space includes: 8,000 ft² of R&D and production labs BSL-2 safety lab and low humidity dry room ISO 8 cleanroom with chemical fume hood Process and procedures in compliance with ISO 13485 and FDA guidelines

Solutions for

Nanobody

Discovery

Scientific and business advantages of nanobodies as a therapeutic Able to penetrate tissues and the extracellular matrix, making it

Nanobodies are small, 15 kDa recombinant proteins with affinity

for antigens that have advantages over conventional antibodies

in targeted therapeutic discovery and development.



- antibodies Tolerant to high temperatures, non-physiological pH, and chemical denaturants
- What to expect when selecting Fortis for your custom
- nanobody discovery project We have one of the largest llama and alpaca immunization

facilities in the nation and are USDA-licensed and OLAW certified.

We immunize naïve llamas and alpacas with your antigen of interest. Our process is 100% vertically integrated and we offer flexible deliverables from nanobody sequence to recombinant

• Simple to produce in bacterial or mammalian systems

protein expression. Our expert scientists will help you tailor your custom nanobody discovery project to meet your desired outcome and deliverables. We use proprietary methods to ensure the VHH region is amplified and cloned into the phagemid for phage display panning and screening for nanobody hits, resulting in complete sequences of your custom VHH library or recombinant expression of the nanobody. We perform extensive bioinformatics research on VHH genes and design novel primers to ensure that we amplify the

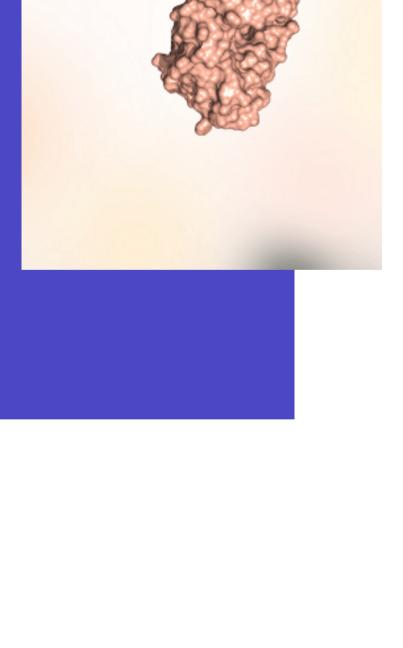
antibodies. This leads to a higher diversity and larger coverage of

protocol routinely yields >1×10# PBMC cells from each production

https://www.fortislife.com/custom-nanobody-discovery-services

VHH region of camelid antibodies and not conventional

VHH repertoires. Our PBMC isolation and library construction



Expertise in antibody manufacturing

Solutions for

Monoclonal

Antibody

Recombinant

Development

With 50 years of experience, our team of skilled scientists work with you throughout each phase of the project to provide a personal service and customized results from start to finish. Our areas of expertise include making

Developing a custom antibody with the specificity for your target of interest requires

significant time, resources, and expertise to be successful. Finding a custom antibody

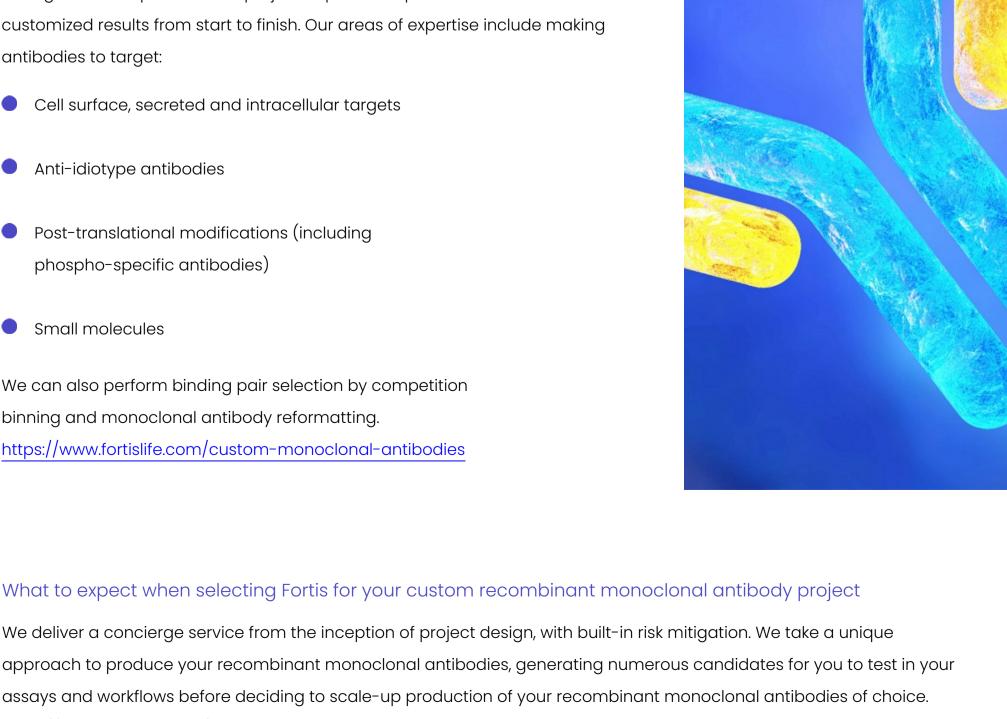
manufacturer that will maximize project efficiency and minimize project risk is critical for

your success. As an extension of your lab, Fortis scientific experts work with you throughout

the entire antibody production process, from immunogen preparation to final deliverable

- antibodies to target: Cell surface, secreted and intracellular targets
- Anti-idiotype antibodies Post-translational modifications (including phospho-specific antibodies)
- We can also perform binding pair selection by competition binning and monoclonal antibody reformatting. https://www.fortislife.com/custom-monoclonal-antibodies

Small molecules



What to expect when selecting Fortis for your custom recombinant monoclonal antibody project We deliver a concierge service from the inception of project design, with built-in risk mitigation. We take a unique

to ensure your project specific needs are met.

assays and workflows before deciding to scale-up production of your recombinant monoclonal antibodies of choice. https://www.fortislife.com/custom-monoclonal-antibodies Milestone 2 (<1 Month) Milestone 3 (<2 Months) Milestone 1 (~3 Months)

Single B-cell Antigen design isolation a screening & Production

Clone & express recombinant mAbs (micrograms)

Fit-for-purpose testing of clone sets by Client

Client-selected clones (milligram)

Scale-up of

Client-provided or made at Fortis (added time/ milestone for non-peptide antigens made at Fortis)

Protein, peptide, PTM, hapten, anti-ID

Screening strategies designed with Client to drive success, e.g. counter screening, co-screening Optional competition binning of cloned mAbs to identify matched pairs Optional recombinant mAb reformatting, e.g. Fab, Fc swapping, tagging, etc





At the foundation of science is research and discovery. Our portfolio of life science research products and solutions supports our customers in academic and biopharmaceutical research.

Brands





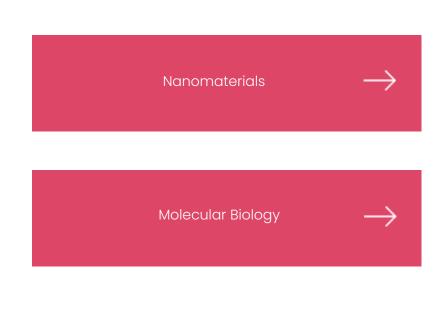
nanoComposix

Products & Services

An extensive portfolio of high-quality antibodies, kits, and nanoparticles as well as custom services supporting numerous research and disease areas

Highlights





Antibody Leadership

We make high-quality and specific antibodies that have been manufactured and validated inhouse, ensuring you get reliable results. Target recognition and specificity is fundamental to ensuring the rigor and reproducibility of data generated by immunoblotting, immunohistochemistry, ELISA, and other assays that rely on antibodies.



Custom Antibody Solutions

The way your custom antibodies are produced can make all the difference to your success. At Fortis, we are 100% vertically integrated from antigen to antibody, giving us complete supply chain control. We manage the entire production and quality control process from start to finish at our in-house facility to provide you with high levels of project customization and scalability. This comprehensive service gives our customers peace of mind and confidence in our products.



Immunoassays

Our portfolio of reagents for immunoassays includes primary and secondary antibodies, kits, reagents, and accessories for use in IHC/IF/ICC, ISH, ELISA, Western blotting, flow cytometry, and other assays that rely on antibodies.



Nanomaterials

At Fortis, our multi-disciplinary team of scientists are experts in synthesizing custom nanoparticles suitable for our client's needs. If you are looking to develop materials, composites, or formulations with tailored specifications for your end application, we can create custom nanoparticles for applications including drug delivery, diagnostics, optical sensors, consumer products, and much more.

https://www.fortislife.com/nanoparticles

Molecular Biology

We offer an extensive library of premium-quality molecular reagents including enzymes and master mixes, and other components for PCR/qPCR, isothermal amplification, and NGS sample preparation for research and commercial applications. Our experts can assist with the

https://www.fortislife.com/molecular-biology-reagents

development and launch of assays and products.



Antibody Leadership

We make high-quality and specific antibodies that have been manufactured and validated in-house, ensuring you get reliable results. Target recognition and specificity is fundamental to ensuring the rigor and reproducibility of data generated by immunoblotting, immunohistochemistry, ELISA, and other assays that rely on antibodies. We apply the six pillars of validation in our lab and every antibody must pass at least two pillars of validation. An extensive portfolio of high-quality antibodies, kits as well as custom services supporting numerous research and disease areas



6 Pillars of validation:

- 1. **Independent Antibodies:** This pillar requires that two or more antibodies directed against different epitopes of a protein generate similar results.
- 2. **Complementary Assays:** This pillar requires that multiple, antibody-dependent assays produce complementary results.
- 3. **Orthogonal Characteristics:** This pillar requires that antibody-independent and antibody-dependent assays produce results that are correlative.
- 4. **Biological Characteristics:** This pillar takes advantage of the unique biology associated with some protein targets.
- 5. **Protein OE/Epitope Tags:** This pillar uses over-expressed (OE) proteins to validate antibodies against targets where we cannot identify a natively expressing cell line, or the protein is expressed at levels insufficient for detection.
- 6. **Genetic Strategies:** This pillar uses gene knockout or knockdown to reduce the levels of target protein available for detection.

The pillars are used in a complementary fashion to validate each antibody, and the pillars can be variable based on the unique biology of each target protein, or the reagents available for that project.

Our catalog includes over 10,000 different antibodies that can be used across a range of applications including IHC/IF/ICC, ISH, ELISA, western blotting, flow cytometry and more. The collection includes primary, secondary, recombinant monoclonal, and epitope tag antibodies with various targets and species, reactivities for use in a number of different, and research area applications. Some of the key focus areas in our catalog are described below.

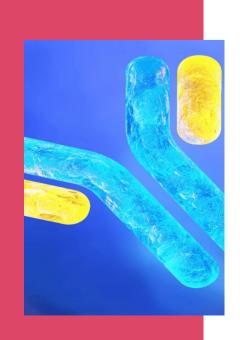
https://www.fortislife.com/antibodies-proteins

Antibodies for Immuno-Oncology

Fortis Life Sciences offers a broad portfolio of antibodies for immuno-oncology applications. These include antibodies recognizing common immune cell subsets found within the tumor microenvironment such as CD3, CD4, and CD19, antibodies that recognize markers of immune suppression such as PD-L1 and arginase, and antibodies to detect tumor markers such as cytokeratin. These antibodies have been validated for use across a variety of applications including flow cytometry, IHC/ICC, immunoprecipitation, and Western blotting. For IHC applications, we also offer IHC PathPlex® panels that are preformatted and optimized to work together; additional antibodies from our catalog of tools for immuno-oncology research can be added to these panels depending on your research needs.

Antibodies for Spatial Biology

Multiplex IHC allows researchers to visualize multiple biomarker proteins on a single tissue sample. The application of multiplex IHC will enable researchers to identify which cells contain the biomarkers of interest and details the spatial arrangements of cells within the tissue. The application of multiplex IHC not only allows researchers to identify which cells contain the biomarkers of interest but also details the spatial arrangements of cells within the tissue. The applications of multiplex IHC span clinical, translational, and basic research applications. Our portfolio of antibodies validated for IHC includes numerous targets for oncology, immuno-oncology, cell biology, cardiovascular research, and more, and demonstrate high-quality staining. Many of these antibodies have also been validated for advanced spatial biology applications, including imaging mass spectrometry.



Antibodies for Cardiovascular Research

Fortis Life Sciences offers a robust portfolio of antibodies and antigen proteins for cardiovascular research. Our portfolio of tools for cardiovascular research includes tools for studying lipoproteins, apolipoproteins, and oxidatively modified products as well as angiogenesis, cardiac development, and cardiovascular disease. Antibodies in this portfolio have been validated for applications including flow cytometry, IHC/ICC, immunoprecipitation, Western blotting, and ChIP.

Custom Antibody Solutions

Not all Antibodies are Created Equal.

How your custom antibodies are produced can make all the difference to your success. At Fortis, we are 100% vertically integrated from immunogen to antibody, giving us complete supply chain control. We manage the entire production and quality control process from start to finish at our in-house facility to provide you with high levels of project customization and scalability. This comprehensive service gives our customers peace of mind and confidence in our products.

"We use ELISA-based assays with custom antibodies from Fortis for the diagnostic detection of known and novel biomarkers. Some companies only splenectomize and proceed with one rabbit, whereas Fortis immunizes multiple rabbits, and these are all screened for antibodies to provide a distribution of the best potential candidates. In this way, we receive multiple options for performing our own screens. Fortis also has proprietary antigen preparation protocols that successfully generate antibodies for targets that other companies simply haven't been able to produce for us." - Lori Kobayashi, Project Manager, Valted Seq

"We're currently developing antibody therapeutics that are highly specific to checkpoint molecules in the novel axis, which could leverage the immune system's intrinsic capacity to eradicate cancer cells.

Fortis immunizes rabbits with our drug molecule, then collects the B cells, which produce a very specific rabbit antibody. It then screens that antibody to make sure it recognizes our molecule, and counter screens it to make sure that the positive rabbit antibody does not bind to the negative isotype control. That's a great way of finding an antibody that is incredibly specific to our drug. The whole process has been very easy, because Fortis cloned each B cell, enabling it to produce more antibodies and generate high yields."

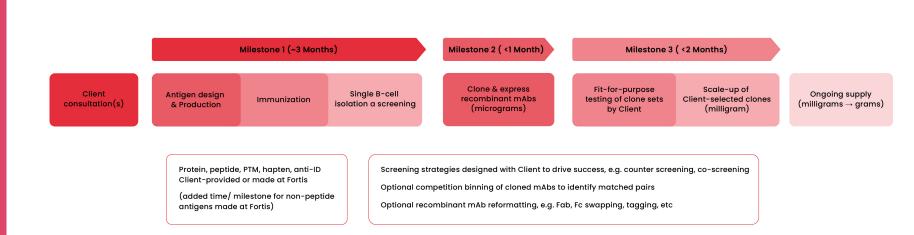
- Bijan Etemad-Gilbertson, PhD, Head of Antibody Technology, NextPoint Therapeutics

"We often see profound differences in the abilities of anti-PTM antibodies because most companies raise, test and validate them to histone peptides only, without considering the nucleosome. Fortis has taken a different approach, as it immunizes and initially screens rabbits with peptides, then exposes the candidates to our nucleosomes to determine how they deal with these chromatin subunits. We've been consistently pleased by Fortis's initial candidate success rate. We have also found the company to be creative in its workflows, responsive to our inputs, and a great group to work with overall. We're now engaged in multiple projects with Fortis, with several anti-PTM clones about to be launched as formal genomic mapping reagents."

Michael-Christopher Keogh, PhD, Chief Scientific Officer, EpiCypher Inc.

Custom Recombinant Monoclonal **Antibodies** We deliver a concierge service from the inception of project design, with built-in risk mitigation. We take a unique approach to producing your recombinant monoclonal antibodies, generating numerous candidates for you to test in your assays and workflows before deciding to scale-up production of your recombinant monoclonal antibodies of choice.

https://www.fortislife.com/custom-monoclonal-antibodies



Custom **Polyclonal Antibodies**

We specialize in custom peptide synthesis, immunization, and polyclonal antibody production /purification to generate high-quality antibodies to suit your scientific needs. Various packages offer flexibility in immunization and deliverables to meet your needs.



- The peptide immunogen can be synthesized in-house or provided by the investigator We can conjugate the peptide to a carrier protein
- Deliverables include antisera or affinity-purified antibody, pre-immune bleeds, and peptide if Fortis synthesized it.
- Custom polyclonal antibodies are validated by ELISA, and can be further validated by Western blot, IHC, or flow cytometry. https://www.fortislife.com/custom-polyclonal-antibody-production

Custom Nanobody **Discovery**

We have completed hundreds of custom nanobody projects. From immunization to sequencing and binding characterization of nanobodies, your entire project will be completed at one of the largest alpaca and llama facilities in the nation with the options for various deliverables to meet your needs.

We use proprietary methods to ensure the VHH region is amplified and cloned into the phagemid for phage display panning and screening for nanobody hits, resulting in complete sequences of your custom VHH library or recombinant expression of the nanobody. We perform extensive bioinformatics research on VHH genes and design novel primers to ensure that we amplify the VHH region of camelid antibodies and not conventional antibodies.

This leads to a higher diversity and larger coverage of VHH repertoires. Our PBMC isolation and library construction protocol routinely yields >1x10# PBMC cells from each production bleed https://www.fortislife.com/custom-nanobody-discovery-services

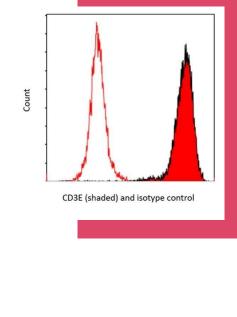
Custom **Antibody** Conjugation

Antibodies conjugated with fluorophores, biomolecules, nanoparticles, or enzymes are essential to direct as well as indirect detection methods in immunoassays. We can conjugate any of our catalog antibodies or your custom antibody to a fluorophore, enzyme, or signal-amplifying particle of choice in small scale and in bulk.

Every immunoassay requires specific types of labels/conjugates. We can conjugate antibodies for use in Western blots, flow cytometry, IHC/ICC, ISH, and other immunoassay methods. Our custom antibody conjugation capabilities include:

- DyLight® conjugated antibodies for flow cytometry, IHC, Western blotting • FITC, PE, and Cy conjugated antibodies for flow cytometry, IHC, Western
- blotting
- HRP and ALP conjugated antibodies for ELISA, IHC/ICC, ISH, and Western blotting Biotin conjugated antibodies for ELISA and IHC/ICC
- You are also able to specify the buffer formulation, antibody quantity and concentration, and custom vialing for your custom antibody conjugation project.

https://www.fortislife.com/antibody-conjugation-service



Antisera

Bulk

and bulk antisera in the form of raw antisera, IgG fraction and affinity-purified plasma. We have a long history of supplying bulk antibodies and reagents to diagnostic assay manufacturers for many applications such as turbidimetry/nephelometry, lateral flow, and immunoassays. We offer the following products in bulk scale, in multiple gram liter scales to support your individual

For in vitro diagnostics, turbidimetric and nephelometric immunoassays, we offer high quality custom

needs:

IgG Fractions

- Affinity Purified Antibodies Secondary Antibodies
- Purified Proteins All bulk order requests can be altered to your application-specific technical requirements, ensuring

customized formulations and competitive pricing. https://www.fortislife.com/bulk-antisera



Immunoassays

Antibodies for Flow Cytometry



Our portfolio of flow-validated antibodies includes recombinant monoclonal and polyclonal primary antibodies for studying pathways in oncology, immunology, cell biology, and cell signalling. We also offer fluorophore-conjugated secondary antibodies necessary for a successful flow cytometry experiment using indirect methods as well as custom antibody conjugation to primary antibodies for direct methods.

ELISA Reagents, Kits, and **Accessories**

At Fortis Life Sciences, we offer a range of high-quality kits, consumables, and accessories for your next ELISA assay. Our kits can be used for a range of different sample types, targets, and reactivities. To support our kits or your own ELISA development, we offer a range of blocking and coating buffer solutions as well as microtiter plates and wash solutions. Our range of ELISA accessories and components allows you to reproducibly detect proteins of interest with the greatest confidence. Every antibody we offer has been manufactured and validated at our own facility, ensuring you get the highest quality and reliable results. Our ready-to-use ELISA kits have all the components you need to reproducibly detect proteins of interest with greater confidence.

https://www.fortislife.com/products/elisa

Tools for IHC Including PathPlex® **Multiplex Antibodies**

Multiplex IHC allows researchers to visualize multiple biomarker proteins on a single tissue sample. The application of multiplex IHC not only allows researchers to identify which cells contain the biomarkers of interest but also details the spatial arrangements of cells within the tissue. The applications of multiplex IHC span clinical, translational, and basic research applications. Our portfolio of antibodies validated for IHC includes numerous targets for oncology, immuno-oncology, cell biology, cardiovascular research, and more. Many of these antibodies have been validated for spatial biology applications, including imaging mass spectrometry. We also offer IHC PathPlex® panels that are preformatted and optimized to work together; additional antibodies from our catalog can be added to these panels depending on your research needs.

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