



Bispecific antibodies

**formats, applications and products
for Bone metabolism testing**

Bispecific antibodies Catalog

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1. Peplines of bispecific antibodies (BsAbs)

Bridge of 2 cells (engagers)

By binding with 2 antigens from 2 different cells, the BsAbs can physically link them together, thus these kinds of BsAbs are named “engagers”. The redirecting of immune cells to tumor cells by the engagers makes the immune cell activated and then eliminate the target cells. The T cell engagers are the most popular BsAbs which account for nearly half of the clinical trials aimed evaluating the BsAbs. NK cell engagers are recently developed BsAbs for NK cell-dependent tumor cell elimination.

The engagers in research, clinical trials and market are listed below. Genemedi offers the high quality, premade benchmark BsAbs for researchers.

| Cat No. | Products Name (INN Index) | INN name | Target |
|-----------------|----------------------------------------------------------------------------------------------------------------------------------------|----------------|-------------------|
| GMP-Bios-ab-006 | Anti-FOLH1;CD3E therapeutic antibody (Pre-made Acapatamab biosimilar,Bispecific scFv) | Acatamab | FOLH1;CD3E |
| GMP-Bios-ab-018 | Anti-TNFRSF17;CD3E therapeutic antibody (Pre-made Alnuctamab biosimilar,Bispecific mAb with Domain Crossover) | Alnuctamab | TNFRSF17;CD3E |
| GMP-Bios-ab-074 | Anti-CD19;CD3E therapeutic antibody (Pre-made Blinatumomab biosimilar,Bispecific T-Cell Engager) | Blinatumomab | CD19;CD3E |
| GMP-Bios-ab-103 | Anti-FCRL5;CD3 therapeutic antibody (Pre-made Cevostamab biosimilar,Bispecific mAb) | Cevostamab | FCRL5;CD3 |
| GMP-Bios-ab-104 | Anti-CEACAM5&CD3E;CD3E therapeutic antibody (Pre-made Cibisatamab biosimilar,Bispecific mAb with Domain Crossover) | Cibisatamab | CEACAM5&CD3E;CD3E |
| GMP-Bios-ab-161 | Anti-CD19;CD3E therapeutic antibody (Pre-made Duvortuxizumab biosimilar,Bispecific scFv with Crossover) | Duvortuxizumab | CD19;CD3E |
| GMP-Bios-ab-173 | Anti-CD33;CD3E therapeutic antibody (Pre-made Eluvixtamab biosimilar,Bispecific scFv) | Eluvixtamab | CD33;CD3E |
| GMP-Bios-ab-176 | Anti-CD33;CD3E therapeutic antibody (Pre-made Emerfetamab biosimilar,Bispecific scFv) | Emerfetamab | CD33;CD3E |



| Cat No. | Products Name (INN Index) | INN name | Target |
|-----------------|-------------------------------------------------------------------------------------------------------------------------------|---------------|---------------|
| GMP-Bios-ab-189 | Anti-CD3E;MS4A1 therapeutic antibody (Pre-made Epcoritamab biosimilar,Bispecific mAb) | Epcoritamab | CD3E;MS4A1 |
| GMP-Bios-ab-197 | Anti-EGFR;CD3E therapeutic antibody (Pre-made Eteviritamab biosimilar,Bispecific scFv) | Eteviritamab | EGFR;CD3E |
| GMP-Bios-ab-218 | Anti-IL3RA;CD3E therapeutic antibody (Pre-made Flotetuzumab biosimilar,Bispecific scFv with Crossover) | Flotetuzumab | IL3RA;CD3E |
| GMP-Bios-ab-248 | Anti-CD3E;MS4A1 therapeutic antibody (Pre-made Glofitamab biosimilar,Bispecific mAb with Domain Crossover) | Glofitamab | CD3E;MS4A1 |
| GMP-Bios-ab-356 | Anti-CD3E;MS4A1 therapeutic antibody (Pre-made Mosunetuzumab biosimilar,Bispecific mAb) | Mosunetuzumab | CD3E;MS4A1 |
| GMP-Bios-ab-380 | Anti-GD2;CD3E therapeutic antibody (Pre-made Nivatrotamab biosimilar,Bispecific Mixed mAb and scFv) | Nivatrotamab | GD2;CD3E |
| GMP-Bios-ab-386 | Anti-CD276;CD3E therapeutic antibody (Pre-made Obrindatamab biosimilar,Bispecific scFv with Domain Crossover) | Obrindatamab | CD276;CD3E |
| GMP-Bios-ab-391 | Anti-MS4A1;CD3E therapeutic antibody (Pre-made Odronextamab biosimilar,Bispecific mAb) | Odronextamab | MS4A1;CD3E |
| GMP-Bios-ab-421 | Anti-TNFRSF17;CD3E therapeutic antibody (Pre-made Pacanalotamab biosimilar,Bispecific scFv) | Pacanalotamab | TNFRSF17;CD3E |
| GMP-Bios-ab-429 | Anti-FOLH1;CD3E therapeutic antibody (Pre-made Pasotuxizumab biosimilar,Bispecific scFv) | Pasotuxizumab | FOLH1;CD3E |
| GMP-Bios-ab-433 | Anti-TNFRSF17;CD3E therapeutic antibody (Pre-made Pavurutamab biosimilar,Bispecific scFv) | Pavurutamab | TNFRSF17;CD3E |
| GMP-Bios-ab-446 | Anti-MS4A1;CD3E therapeutic antibody (Pre-made Plamotamab biosimilar,Bispecific Mixed mAb and scFv) | Plamotamab | MS4A1;CD3E |



| Cat No. | Products Name (INN Index) | INN name | Target |
|------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|--------------|---------------|
| <u>GMP-Bios-ab-500</u> | <u>Anti-ERBB2;CD3E therapeutic antibody (Pre-made Runimotamab biosimilar,Bispecific mAb)</u> | Runimotamab | ERBB2;CD3E |
| <u>GMP-Bios-ab-528</u> | <u>Anti-EPCAM;CD3E therapeutic antibody (Pre-made Solitomab biosimilar,Bispecific scFv)</u> | Solitomab | EPCAM;CD3E |
| <u>GMP-Bios-ab-546</u> | <u>Anti-GPRC5D;CD3E therapeutic antibody (Pre-made Talquetamab biosimilar,Bispecific mAb)</u> | Talquetamab | GPRC5D;CD3E |
| <u>GMP-Bios-ab-552</u> | <u>Anti-DLL3;CD3E therapeutic antibody (Pre-made Tarlatamab biosimilar,Bispecific scFv)</u> | Tarlatamab | DLL3;CD3E |
| <u>GMP-Bios-ab-557</u> | <u>Anti-TNFRSF17;CD3E therapeutic antibody (Pre-made Teclistamab biosimilar,Bispecific mAb)</u> | Teclistamab | TNFRSF17;CD3E |
| <u>GMP-Bios-ab-563</u> | <u>Anti-CLEC12A;CD3E therapeutic antibody (Pre-made Tepoditamab biosimilar,Bispecific mAb)</u> | Tepoditamab | CLEC12A;CD3E |
| <u>GMP-Bios-ab-570</u> | <u>Anti-SSTR2;CD3E therapeutic antibody (Pre-made Tidutamab biosimilar,Bispecific Mixed mAb and scFv)</u> | Tidutamab | SSTR2;CD3E |
| <u>GMP-Bios-ab-619</u> | <u>Anti-IL3RA;CD3E therapeutic antibody (Pre-made Vibecotamab biosimilar,Bispecific Mixed mAb and scFv)</u> | Vibecotamab | IL3RA;CD3E |
| <u>GMP-Bios-ab-624</u> | <u>Anti-CD3E;CD33 therapeutic antibody (Pre-made Vixtimotamab biosimilar,Bispecific Homodimer (VK-VH-VL'-VH', Tandem diabody))</u> | Vixtimotamab | CD3E;CD33 |
| <u>GMP-Bios-ab-663</u> | <u>Anti-TNFRSF17;CD3E therapeutic antibody (Pre-made Elranatamab biosimilar,Whole mAb)</u> | Elranatamab | TNFRSF17;CD3E |
| <u>GMP-Bios-ab-670</u> | <u>Anti-CLDN18;CD3E therapeutic antibody (Pre-made Gresonitamab biosimilar,Whole mAb)</u> | Gresonitamab | CLDN18;CD3E |
| <u>GMP-Bios-ab-673</u> | <u>Anti-CD37;CD37 therapeutic antibody (Pre-made Ivicentamab biosimilar,Whole mAb)</u> | Ivicentamab | CD37;CD37 |



| Cat No. | Products Name (INN Index) | INN name | Target |
|------------------|------------------------------------------------------------------------------------------------------------------------|------------------|-------------|
| GMP-Bios-ab-705 | Anti-MUC16;CD3E therapeutic antibody (Pre-made Ubamatamab biosimilar,Whole mAb) | Ubamatamab | MUC16;CD3E |
| GMP-Bios-ab-708 | Anti-MUC17;CD3E therapeutic antibody (Pre-made Vepsitamab biosimilar,Whole mAb) | Vepsitamab | MUC17;CD3E |
| GMP-Bios-ab-709 | Anti-FOLH1;CD3E therapeutic antibody (Pre-made Voxalatamab biosimilar,Whole mAb) | Voxalatamab | FOLH1;CD3E |
| GMP-Bios-INN-772 | Anti-EpCAM;CD3E therapeutic antibody (Pre-made Catumaxomab biosimilar, Whole mAb) | Catumaxomab | EpCAM;CD3E |
| GMP-Bios-INN-780 | Anti-ERBB2;4-1BB therapeutic antibody (Pre-made Cinrebafusp alfa biosimilar, IG-GAMMA-4-[LCN2]2 KAPPA) | Cinrebafusp alfa | ERBB2;4-1BB |
| GMP-Bios-INN-845 | Anti-CD3E;HER2 therapeutic antibody (Pre-made Ertumaxomab biosimilar,Whole mAb) | ertumaxomab | CD3E;HER2 |

Targeting multiple receptors

Bridging receptors is an obligate mechanism in which the binding of BsAbs to 2 receptors causes the activation or inhibition of each receptor. The co-activation or inhibition synergistically enhanced the biological effect of single antibody.

| Cat No. | Products Name (INN Index) | INN name | Target |
|-----------------|-----------------------------------------------------------------------------------------------------------------------|-------------|---------------|
| GMP-Bios-ab-007 | Anti-CD274;TNFRSF9 therapeutic antibody (Pre-made Acasunlimab biosimilar,Bispecific mAb) | Acasunlimab | CD274;TNFRSF9 |
| GMP-Bios-ab-021 | Anti-EGFR;MET therapeutic antibody (Pre-made Amivantamab biosimilar,Bispecific mAb) | Amivantamab | EGFR;MET |
| GMP-Bios-ab-088 | Anti-PDCD1;CTLA4 therapeutic antibody (Pre-made Cadonilimab biosimilar,Bispecific Mixed mAb and scFv) | Cadonilimab | PDCD1;CTLA4 |



| Cat No. | Products Name (INN Index) | INN name | Target |
|------------------|--------------------------------------------------------------------------------------------------------------------------------|-----------------|------------------------------------|
| GMP-Bios-ab-194 | Anti-CD274;CTLA4 therapeutic antibody (Pre-made Erfonrilimab biosimilar,Bispecific Single Domains (VH-VH'-CH)) | Erfonrilimab | CD274;CTLA4 |
| GMP-Bios-ab-287 | Anti-ICOS;PDCD1 therapeutic antibody (Pre-made Izuralimab biosimilar,Bispecific Mixed mAb and scFv) | Izuralimab | ICOS;PDCD1 |
| GMP-Bios-ab-432 | Anti-LAG3;CTLA4 therapeutic antibody (Pre-made Pavunalimab biosimilar,Bispecific Mixed mAb and scFv) | Pavunalimab | LAG3;CTLA4 |
| GMP-Bios-ab-440 | Anti-EGFR;LGR5 therapeutic antibody (Pre-made Petosemtamab biosimilar,Bispecific mAb) | Petosemtamab | EGFR;LGR5 |
| GMP-Bios-ab-556 | Anti-PDCD1;LAG3 therapeutic antibody (Pre-made Tebotelimab biosimilar,Bispecific scFv with Crossover) | Tebotelimab | PDCD1;LAG3 |
| GMP-Bios-ab-631 | Anti-CTLA4;PDCD1 therapeutic antibody (Pre-made Vudalimab biosimilar,Bispecific Mixed mAb and scFv) | Vudalimab | CTLA4;PDCD1 |
| GMP-Bios-ab-667 | Anti-PDCD1;ERBB2 therapeutic antibody (Pre-made Fidasimtamab biosimilar,Whole mAb) | Fidasimtamab | HER2;PD1 |
| GMP-Bios-ab-679 | Anti-PDCD1;CTLA4 therapeutic antibody (Pre-made Lorigerlimab biosimilar,Whole mAb) | Lorigerlimab | PDCD1;CTLA4 |
| GMP-Bios-ab-701 | Anti-CD40;TNFRSF9 therapeutic antibody (Pre-made Tecaginlimab biosimilar,Whole mAb) | Tecaginlimab | CD40;CD173 |
| GMP-Bios-INN-836 | Anti-CD19;CD137therapeutic antibody (Pre-made Tecaginlimab biosimilar,Whole mAb) | ensomafusp alfa | CD19;41BB ligand (fusized protein) |
| GMP-Bios-INN-981 | Anti-CD11;CD18 therapeutic antibody (Pre-made Acasunlimab biosimilar,Bispecific mAb) | Rovelizumab | CD11;CD18 |



ligand redundancy

In addition to bind to the receptors, targeting redundancy for cytokines or angiogenesis factors represents an area of interest for BsAbs.

| Cat No. | Products Name (INN Index) | INN name | Target |
|------------------|--------------------------------------------------------------------------------------------------------------------------|------------------|-----------------|
| GMP-Bios-ab-145 | Anti-DLL4;VEGFA therapeutic antibody (Pre-made Dilpacimab biosimilar,Bispecific mAb) | Dilpacimab | DLL4;VEGFA |
| GMP-Bios-ab-204 | Anti-VEGFA;ANGPT2 therapeutic antibody (Pre-made Faricimab biosimilar,Bispecific mAb) | Faricimab | VEGFA;ANGPT2 |
| GMP-Bios-ab-282 | Anti-IGF1R;ERBB3 therapeutic antibody (Pre-made Istiratumab biosimilar,Bispecific Mixed mAb and scFv) | Istiratumab | IGF1R;ERBB3 |
| GMP-Bios-ab-331 | Anti-IL1A;IL1B therapeutic antibody (Pre-made Lutikizumab biosimilar,Bispecific Dual Variable Domain IG) | Lutikizumab | IL1A;IL1B |
| GMP-Bios-ab-369 | Anti-DLL4;VEGFA therapeutic antibody (Pre-made Navicixizumab biosimilar,Bispecific mAb) | Navicixizumab | DLL4;VEGFA |
| GMP-Bios-ab-478 | Anti-IL17A;TNFA therapeutic antibody (Pre-made Remtolumab biosimilar,Bispecific Dual Variable Domain IG) | Remtolumab | IL17A;TNFA |
| GMP-Bios-ab-492 | Anti-IL13;IL4 therapeutic antibody (Pre-made Romilkimab biosimilar,Bispecific Dual Variable Domain IG) | Romilkimab | IL13;IL4 |
| GMP-Bios-ab-568 | Anti-TNFSF13B;IL17A therapeutic antibody (Pre-made Tibulizumab biosimilar,Bispecific Mixed mAb and scFv) | Tibulizumab | TNFSF13B; IL17A |
| GMP-Bios-ab-612 | Anti-ANGPT2;VEGFA therapeutic antibody (Pre-made Vanucizumab biosimilar,Bispecific mAb) | Vanucizumab | ANGPT2;VEGFA |
| GMP-Bios-INN-793 | Anti- NT5E; TGFBR2 therapeutic antibody (Pre-made Vanucizumab biosimilar,Bispecific mAb) | dalutrafusp alfa | NT5E; TGFBR2 |



Biparatopic bsAbs

Instead of targeting two different proteins, bsAbs may be designed to simultaneously bind to two non-overlapping epitopes on the same target. Biparatopic targeting builds on increasing binding strength through antigen crosslinking and aggregation, thereby mimicking effects observed for antibody mixtures and polyclonal antibodies. Biparatopic bsAbs are therefore essentially a combinatorial concept.

| Cat No. | Products Name (INN Index) | INN name | Target |
|------------------|--------------------------------------------------------------------------------------------------------------------------------|------------------|-----------------------------------------------|
| GMP-Bios-ab-023 | Anti-ERBB2 (Domain II);ERBB2 (Domain IV) therapeutic antibody (Pre-made Anbenitamab biosimilar,Bispecific mAb) | Anbenitamab | ERBB2 (Domain II);ERBB2 (Domain IV) |
| GMP-Bios-ab-639 | Anti-ERBB2;ERBB2 therapeutic antibody (Pre-made Zanidatamab biosimilar,Bispecific mAb) | Zanidatamab | ERBB2;ERBB2 |
| GMP-Bios-INN-813 | Anti-VEGF;VEGF:fused CR1 therapeutic antibody (Pre-made Efdamrofusp alfa biosimilar,Bispecific mAb) | Efdamrofusp alfa | VEGF (Domain II); VEGF (Domain III):fused CR1 |

Cofactor mimetics

BsAbs can also be designed as a scaffold or cofactor linking enzyme and substrate together. One of the applications is the BsAbs used as a substitution of a critical clotting factor in the treatment of hemophilia.

| Cat No. | Products Name (INN Index) | INN name | Target |
|-----------------|--------------------------------------------------------------------------------------------------|------------|--------|
| GMP-Bios-ab-177 | Anti-F9;F10 therapeutic antibody (Pre-made Emicizumab biosimilar,Bispecific mAb) | Emicizumab | F9;F10 |



Piggyback approaches

Exploit the first binding specificity of a BsAb as a transport modality for the second specificity are named the “piggyback” approaches. To cross the blood-brain barrier, one binding arm of the BsAbs are designed to target the transferrin receptor (TfR). The human serum albumin (HSA) targeting domain are used to extend the half-life of BsAbs, especially to BsAbs without Fc, for example the tandem ScFvs or VHHs. In addition, the piggyback approaches are also been used in promoting the degradation of pathogens.

| Cat No. | Products Name (INN Index) | INN name | Target |
|------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|------------------------------------------------------------------------------|
| GMP-Bios-ab-251 | Anti-RSV gpF therapeutic antibody (Pre-made Gontivimab biosimilar,Bispecific Single Domains (VH-VH'-VH')) | Gontivimab | RSV gpF |
| GMP-Bios-ab-253 | Anti-PcrV type III secretion system;Polysaccharide synthesis locus (Pseudomonas) therapeutic antibody (Pre-made Gremubamab biosimilar,Bispecific mAb) | Gremubamab | PcrV type III secretion system; Polysaccharide synthesis locus (Pseudomonas) |
| GMP-Bios-ab-281 | Anti-ADAMTSL5;ALB therapeutic antibody (Pre-made Isecarosmab biosimilar,Bispecific Single Domains (VH-VH')) | Isecarosmab | ADAMTSL5;ALB |
| GMP-Bios-ab-419 | Anti-TNFA;ALB therapeutic antibody (Pre-made Ozoralizumab biosimilar,Bispecific Single Domains (VH-VH'-VH)) | Ozoralizumab | TNFA;ALB |
| GMP-Bios-ab-625 | Anti-IL6R;ALB therapeutic antibody (Pre-made Vobarilizumab biosimilar,Bispecific Single Domains (VH-VH')) | Vobarilizumab | IL6R;ALB |
| GMP-Bios-INN-880 | Anti-ALB;IL17A/IL17 Therapeutic Antibody (Pre-Made Izokibep Biosimilar, Bispecific, Anti-FDAHT/HSA/PRO0883/PRO0903/PRO1341;CTLA-8/CTLA 8A Antibody) | Izokibep | ALB; IL17A |
| GMP-Bios-INN-996 | Anti-ALB;IL17A/IL17;IL17F Therapeutic Antibody (Pre-Made Sonelokimab Biosimilar, Bispecific, Anti -FDAHT/HSA/PRO0883/PRO0903/PRO1341;CTLA -8/CTLA8/IL-17A/ILA17;CANDF6/ML-1/ML1 Antibody) | Sonelokimab | IL17A;ALB; IL17F |



2. Introduction about bispecific antibodies (BsAbs)

Bispecific antibodies (BsAbs) are designed to bind two different epitopes or antigens, which leads to multiple mechanistic functions with synergistic effects. The attractive feature is their potential for novel functionalities, which do not exist in mixtures of the parental or reference antibodies. Till now, more than 200 BsAb-based clinical trials have been registered on clinicaltrials.org and 4 BsAbs (with one withdraw) have been granted FDA approval. The promising future makes BsAbs attracting more attentions.

The connecting of two specificities within one BsAb can be exploited for novel therapeutic concepts. The mostly applications of BsAbs are recruiting effector cells to the target cells, which are regarded as the immune cell engagers. The redirection of the cytotoxic effector cells (T and NK cells) to the targeting cancer cells by BsAbs physically link them together and activate the effector cells to eliminate the target ones. In addition, the BsAbs can also be used to link two molecules together to make the therapeutic effects such as the dual inhibition of immune checkpoints, the conditionally activate a growth factor receptor for diabetes treatment and the replacement of natural bridge molecules such as the coagulation factor VIII. More innovative designs of BsAbs can be achieved in the future.

To accelerate the development of BsAbs, Genemedi offers the high quality, premade benchmark BsAbs for researchers. The biosimilars are expressed by mammalian cell line and used for biological drug discovery items including cell culture, assay development, animal model development, PK/PD model development (Pharmacokinetics & Pharmacodynamic) and mechanism of action (MOA) research.

3. Formats of bispecific antibodies (BsAbs)

Many formats have been developed for BsAb generation as listed in the following table.

| Format | Schematic structure | Description | Example BsAb | Trademark | Company |
|-------------------------------------|-------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------|--------------|-----------|------------------------|
| tandem VHH | | Tandem VHH fragment-based BsAb | N/A | | |
| tandem scFv |  | Tandem ScFv fragment-based BsAb | AMG330 | BiTE™ | Amgen |
| Dual-affinity re-targeting antibody |  | Tandem domain-exchanged Fv (can also be used to fuse with Fc domain to create whole Abs) | Flotetuzumab | DART™ | Macrogenics |
| Diabody |  | dimer of single-chain Fv (scFv) fragment | vixtimotamab | ReSTORE™ | Amphivena Therapeutics |
| (scFv)2-Fab |  | a Fab domain and two scFv domains bind | A-337 | ITab™ | Generon/EVIV E Biotech |



| Format | Schematic structure | Description | Example BsAb | Trademark | Company |
|-------------------------------------------|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|------------------------------------------------------------------------------------|----------------------------|
| Rat–mouse hybrid IgG |  | Full-size IgG-like half antibodies from two different species | Catumaxomab | Triomab™ | Trion Pharma |
| Hetero heavy chain, Common light chain |  | Hetero heavy chain, Common light chain | Emicizumab | ART-Ig™ | Genentech/ Chugai/Roche |
| Controlled Fab arm exchange |  | Recombine the parental half antibodies | JNJ-64007957 | Duobody™ | Genmab/ Janssen |
| Hetero H, forced HL IgG1 |  | KIH technology for heterodimerization of 2 distinct H chains, replacing the native disulfide bond in one of the CH1-CL interfaces with an engineered disulfide bond to enhance the cognate of H and L pairing | MEDI5752 | DuetMab™ | MedImmune/ AstraZeneca |
| cH IgG1 |  | Identical heavy chains; 2 different light chains: one kappa (κ) and one lambda (λ) | NI-1701 | κλ body™ | Novimmune SA |
| Hetero H, CrossMab |  | KIH technology; domain crossover of immunoglobulin domains in the Fab region | Vanucizumab | CrossMab™ | Roche |
| scFv-Fab IgG |  | Fab-Fc; ScFv-Fc | Vibecotamab; M802 | Xmab™ (the engineered Fc to enhance the generation of heterodimeric Fc); YBODY™ | Xencor/Amgen; ZYBio |
| VH1-VH2-CH1-Fc1 (G1) x VL2-VL1-CL-Fc2(G1) |  | 2 binding motif in one half antibody | SAR440234 | CODV-Ig™ | Sanofi |



| Format | Schematic structure | Description | Example BsAb | Trademark | Company |
|-----------------------------------------------------|-----------------------------------------------------------------------------------|----------------------------------------------------------------------------------|--------------|------------------|------------------------|
| VL1-CL1-VH2-CH2-Fc x VH1-CH1 x VL2-CL2 |  | 2 binding motif in one half antibody | EMB-01 | FIT-Ig™ | EPIMAB BIOTHERAPEUTICS |
| VH-1-TCR Cα x VL-1-TCR Cβ; VH-2-CH-2-Fc x VL-2-CL-2 |  | KIH technology; TCR Cα/Cβ is used to substitute the CH1 and CL domain in one arm | | WuXibody™ | WuXi Biologics |
| C-terminal linker of Fc |  | Link the other molecules at the C-terminal of Fc | APVO442 | ADAPTIR-FLEX™ | Aptevo Therapeutics |
| Fc antigen binding site |  | 2 natural binding sites; 2 additional binding sites in the Fc loop | FS118 | mAb ² | F-star Therapeutics |

4. Bispecific Antibody Development Programs Guidance for Industry by FDA

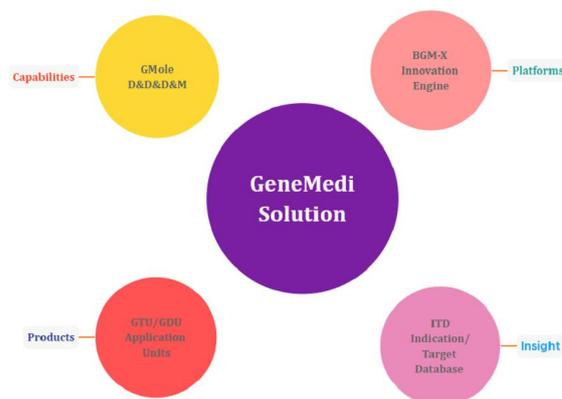
FDA set up the guidance for the development of BsAbs. The link and PDF files are listed below.

[Bispecific Antibody Development Programs Guidance for Industry](https://www.fda.gov/oc/ohrt/bispecific-antibody-development-programs-guidance-for-industry)



About GeneMedi

We develop solutions for the therapeutics and diagnostics industry.



About GMole™

GMolecule-Innovative capabilities in molecular entity discovery and application development.

GMolecule is the capabilities derived from insight and expertise of Gene & Biologics molecular entity discovery and development. Our QbD process is combined and optimized with intelligent design, smart discovery, rational development, and State-of-the-Art manufacturing (D&D&D&M). Data management is separated independently for high-quality data certification. The modalities and facilities of GMolecule are including antibodies, recombinant protein, and multiple types of gene therapy vectors and delivery vehicles (AAV, lentivirus, virus-like particle(VLP), etc.).

About GTU&GDU

GTU&GDU, GeneMedi Therapeutics Unit & GeneMedi Diagnostics Unit, are GM's 2 unique product-solution units for the industry of therapeutics or diagnostics. Since the insight from GM's unique in-house database-GM target/biomarkers and diseases database, GM empowers self-capabilities for application development to develop more effective products and solutions to meet the needs of the therapeutics and diagnostics industry.

About GeneMedi ITD

ITD is GeneMedi's target-insight database that connects human indications/diseases/conditions with associated targets/biomarkers in diagnostics, therapeutics, and prognostics. ITD is a data-driven artificial intelligent system that learns from literature and in-house wet-dry exploration with closed-loop design. GeneMedi ITD target-insight system robustly improves the development efficiency for therapeutics and diagnostics industry solutions.



BGM X

Passion, Innovation, Pioneer, Explorer

With years of modalities discovery insight and expertise in the pharmaceutical industry, GeneMedi has developed innovative BGM-X™ Engine for big data-driven scientific discovery and industrial development in modalities of biologics and gene therapeutics.



TAURUS™ PLATFORM FOR DIFFICULT TARGETS ANTIBODY DISCOVERY

GeneMedi's Taurus™-Antibody Discovery Platform is to achieve **Tough Antigen Unique-epitope Recognized with Unique Smart-immunogen** strategy.



LIBRA™-ANTIBODY ENGINEERING PLATFORM FOR ANTIBODY HUMANIZATION, MATURATION, AND RATIONAL EVOLUTION

LIBRA is developed with the characteristics: **Light, Intelligent, Balanced, Rational, and Algorithm-driven.**



NOVEL AAV DISCOVERY & RATIONAL-EVOLUTION PLATFORM

GeneMedi's **Novel Evolution-X Technology** for discovery of next generation of AAV. X refers to the exploring of AAV for more possibilities with GeneMedi's innovational strategies.



GENEMEDI
Innovation In Gene Therapy & Biologics

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