BioDrugs
Monoclonal Antibody and Fusion Protein Biosimilars Across Therapeutic Areas: A Systematic Review of Published Evidence
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Supplementary Table S3. Originator mAbs, fusion proteins/interleukin-1 receptor antagonists, and corresponding named biosimilar agents or intended copies classified by empirical and non-empirical publication type

Biologic Originator, Generic name	Biosimilar (Name(s)*; Company)	Empirical publications (studies)†	Non-empirical publication†
Oncology mAbs			
Bevacizumab	ABP 215 (Amgen, USA)	4 (2)[1-4]	–
	BCD-021 (Biocad, Russia)	2 (2)[5,6]	–
	PF-06439535 (Pfizer, USA)	2 (2)[7,8]	–
	RPH-001 (Alphamab, China/R-Pharm, Russia)	1 (1)[9]	–
	Biosimilars without unique identifiers	6	4
Bevacizumab (originator + 4 named biosimilars) total		**15**	**4**
Cetuximab	No named biosimilars	7	2
Trastuzumab	BCD-022 (Biocad, Russia)	1 (1)[10]	–
	CT-P6 (Celltrion, South Korea/Hospira, USA)	2 (2)[11,12]	–
	FTMB (ABP 980; Allergan, USA/Amgen, USA/Synthon, The Netherlands)	2 (1)[13,14]	–
	PF-05280014 (Pfizer, USA)	11 (5)[15-25]	–
	Biosimilars without unique identifiers	23	11
Trastuzumab (originator + 4 named biosimilars) total		**39**	**11**
Oncology/Inflammatory disease mAbs			
Rituximab‡	1B8 (Center of Molecular Immunology, Cuba)	Onc: 1 (1)[26]	–
	BCD-020 (AcellBia™; Biocad, Russia)	Onc: 3 (1)[27-29]	–
	CT-P10 (Celltrion, South Korea)/Hospira, USA)	Inflamm: 2 (1)[30,31]	–
	GP2013 (Sandoz, Switzerland)	Onc: 4 (2)[32-35] Inflamm: 3 (2)[32,33,35]	1[36]
	PF-05280586 (Pfizer, USA)	Onc: 4 (2)[37-40] Inflamm: 10 (5)[37-46]	–
	RTXM83 (mAbxience, Switzerland)	Onc: 2 (2)[47,48] Inflamm: 1 (1)[48]	–
	SAIT101 (Samsung, South Korea)§	Onc: 1 (1)[49]	–
	IC of rituximab		
	Kikuzubam® (IC) (Probiomed, Mexico)	Onc: 1 (1)[50] Inflamm: 2 (2)[50,51]	–
	Reditux™ (IC) (Dr Reddy's Laboratories, India)	Onc: 10 (8)[50,52-60] Inflamm: 8 (7)[50,52-55,61-63]	–
	Biosimilars without unique identifiers	14	17
Rituximab (originator + 7 named biosimilars + 2 IC) total		**51**	**18**

continued

Chronic inflammatory disease mAbs			
Adalimumab	ABP 501 (Amgen, USA)	7 (4)[64-70]	–
	Exemptia™ (Cadila Healthcare, India)	1 (1)[71]	–
	GP2017 (Sandoz, Switzerland)	3 (2)[72-74]	–
	PF-06410293 (Pfizer, USA)	2 (2)[75,76]	–
	SB5 (Samsung Bioepis, South Korea)	1 (1)[77]	–
	Biosimilars without unique identifiers	6	13
Adalimumab (originator + 4 named biosimilars) total		**20**	**13**
Certolizumab pegol	Biosimilars without unique identifiers	–	7
Clazakizumab	Biosimilars without unique identifiers	–	1
Golimumab	Biosimilars without unique identifiers	–	7
Infliximab	BOW015 (Ranbaxy Laboratories, India /Epirus Biopharmaceuticals, USA)	6 (2)[78-83]	–
	CT-P13 (Remsima™; Inflectra™; Celltrion, South Korea /Hospira, USA)	38 (20)[84-121]	38[36,122-158]
	PF-06438179 (Pfizer, USA)	7 (2)[159-165]	–
	SB2 (Flixabi®; Samsung Bioepis, South Korea)	3 (2)[166-168]	–
	Biosimilars without unique identifiers	20	30
Infliximab (originator + 4 named biosimilars) total		**74**	**68**
Ixekizumab	Biosimilars without unique identifiers	–	1
Sarilumab	Biosimilars without unique identifiers	–	1
Secukinumab	Biosimilars without unique identifiers	–	1
Sirukumab	Biosimilars without unique identifiers	–	1
Tocilizumab	Biosimilars without unique identifiers	–	4
Ustekinumab	Biosimilars without unique identifiers	–	1
Chronic inflammatory disease fusion proteins/Interleukin-1 receptor-antagonists			
Abatacept	Biosimilars without unique identifiers	1	6
Anakinra	Biosimilars without unique identifiers	–	3
Etanercept	*AVG01 (Avent™; Avesthagen, India)*	1 (1)[169]	–
	ENIA11 (TuNEX®; Mycenax Biotech/TSH Biopharm Corp, Taiwan)	2 (1)[170,171]	1[36]
	GP2015 (Sandoz, Switzerland)	2 (1)[172,173]	–
	HD203 (Hanwha Chemical, South Korea / Merck, USA)	3 (2)[174-176]	1[36]
	LBEC0101 (LG Life Sciences, South Korea)	1 (1)[177]	–
	SB4 (Benepali®; Samsung Bioepis, South Korea)	3 (2)[178-180]	–
	IC of etanercept		
	Infinitam® (IC) (Probiomed, Mexico)	2 (2)[51,181]	–
	Yisaipu® (IC) (Etanar®; Shanghai CP Guojian Pharmaceutical, China)	4 (4)[51,182-184]	1[185]
	Biosimilars without unique identifiers	8	14
Etanercept (originator + 6 named biosimilars + 2 IC) total		**26**	**15**
Other disease area‖ mAbs			
Abciximab	Clotinab (ISU ABXIS, South Korea)	1 (1)[186]	–
Omalizumab	CMAB007 (National Engineering Research Center of Antibody Medicine, China)	1 (1)[187]	–
Ranibizumab	PF582 (Pfenex, USA/Hospira, USA)	–	1[188]

continued

* Alternative names for biosimilars are provided in parentheses where applicable
† Reference counts correspond to the number of identified publications. The number of unique empirical studies reported for named biosimilars is shown in parentheses. 'Empirical' and 'Non-empirical' categories exclude payer/physician surveys
‡ Corresponding indications for study counts for rituximab are labeled with ‘Onc’ for oncology and ‘Inflamm’ for chronic inflammatory disease. Note that some studies/publications were classified under both oncology and inflammatory disease indications
§ SAIT101 was discontinued, October 2012. Source: http://www.biopharma-reporter.com/Bio-Developments/Samsung-halts-biosimilar-rituximab-trial-on-regulatory-concerns (accessed 9 Aug 2016).
‖ Abciximab is indicated for cardiovascular disorders, omalizumab is indicated for respiratory (allergic) conditions, ranibizumab is indicated for eye conditions (ophthalmology).

IC intended copy; *inflamm* inflammatory disease; *mAbs* monoclonal antibodies; *onc* oncology.

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