Anti-BBS1 Rabbit Polyclonal Antibody

Atrial natriuretic peptide receptor 1 EC 4.6.1.2, Atrial natriuretic peptide receptor type A, ANP-A, ANPR-A, NPR-A, Guanylate cyclase A, GC-A,

Gene: BBS1 **UniProt:** P16066 **Host:** Rabbit **Clonality:** Polyclonal (pAb)

Product Image

Image placeholder — Western Blot

— Western Blot

Suggested image: Western blot of relevant cell or tissue lysates under reducing conditions, probed with the domain-specific antibody. Include a positive-control lane and empty-vector or knockout negative control. Loading: 10–20 µg/lane on 7.5–10% SDS-PAGE.

Key Product Facts

Supplier	Triple Point Biologics, Inc. (Sudbury, Ontario, Canada)
Product Name	Anti-BBS1 Rabbit Polyclonal Antibody
Gene Symbol	BBS1
Alternative Names	Atrial natriuretic peptide receptor 1 EC 4.6.1.2, Atrial natriuretic peptide receptor type A, ANP-A, ANPR-A, NPR-A, Guanylate cyclase A, GC-A,
UniProt ID	P16066
Host Species	Rabbit
Clonality	Polyclonal (pAb)
Isotype	IgG
Concentration	1mg/ml
Purity	Affinity purified
Pack Size	100ug
Validated Application	WB
Recommended Dilution	WB-1/1000
Species Reactivity	Validated- Human Potential
Immunogen Type	Synthetic Peptide from Uniprot Sequence
Conjugation	none
Buffer / Preservatives	Sodium Chloride 500 mM, Sodium Phosphate 10 mM, Potassium Phosphate 1.8 mM, Potassium Chloride 2.7 mM, Glycerol 50% (v/v)
Website	triplepointbiologics.com/anti-bbs-1-rabbit-polyclonal-antibody

Available Domain-Specific Variants

Triple Point Biologics produces antibodies to defined structural domains of BBS1. Each variant is directed at a specific structural region of the protein. Exact peptide sequences are proprietary; each variant is validated for the applications listed.

Domain / Variant	Epitope Region (approx. residues)	Cat. No.	Availability

Aminoterminal end short form	**33–83** Region within the extreme N-terminal segment of human BBS1, preceding the core WD40 β-propeller domain; this area is structurally disordered in available models and lies upstream of the first WD40 repeat unit	RP2ANPR1	In catalog
Carboxyterminal region	**1011–1061** Region within the C-terminal platform/GAE-like domain of human BBS1, downstream of the WD40 β-propeller; this segment contributes to inter-subunit contacts within the BBSome and harbours residues in the vicinity of the disease-relevant M390R interface region	RP1BBS1	In catalog
—	**33–1061** Broad multi-domain immunogen spanning the full-length BBS1 protein, encompassing the N-terminal disordered segment, the central WD40 β-propeller repeats, and the C-terminal GAE-like platform domain; suitable for detection of both full-length and truncated isoforms	RP-BBS1	In catalog

Applications & Recommended Dilutions

App.	Species	Dilution Range	Notes
WB	Validated-Human Potential	1:1000	Optimal dilution should be determined per laboratory and lot.

Optimal dilutions should be determined by each laboratory for each application. Triple Point Biologics antibodies include a peptide-neutralized negative control aliquot for specific-signal confirmation.

Storage & Handling

Short-term Storage	+4°C (1–2 weeks)
Long-term Storage	Aliquot and store at -20°C
Shipping Conditions	Shipped in styrofoam cooler on blue ice
Hazard Warning	Product may contain Sodium Azide — POISONOUS AND HAZARDOUS. Handle by trained personnel only.
Shelf Life	12 months from date of receipt under recommended conditions

Target Background

BBSome Complex & Protein Family

BBS1 (Bardet-Biedl syndrome 1 protein; UniProt Q8NFJ9) is a 593-amino acid component of the BBSome, a heterooctameric coat-like complex comprising BBS1, BBS2, BBS4, BBS5, BBS7, BBS8, BBS9, and BBIP10. BBS1 carries an N-terminal β-propeller domain and a C-terminal GAE/platform domain, providing the structural scaffold required for proper BBSome assembly. The BBSome is functionally analogous to COPI and COPII vesicle coats, mediating the sorting and bidirectional trafficking of membrane-associated cargo — including GPCRs, ion channels, and signaling receptors — within the ciliary compartment.

Expression & Localisation

BBS1 is broadly expressed across human tissues, with notable abundance in tissues harboring primary or motile cilia: retinal photoreceptors, olfactory neurons, hypothalamus, kidney tubular epithelium, and testis. At the subcellular level, BBS1 localises to the basal body, the ciliary transition zone, and the ciliary membrane. In non-ciliated interphase cells, a fraction of BBS1 has been detected at centriolar satellites, though its functional requirement there appears dispensable, underscoring a selective, cilia-centric role for the protein.

BBSome Assembly & Ciliary Trafficking Mechanism

BBSome assembly proceeds through defined sub-complex intermediates; BBS1 is incorporated at a late stage and its presence is required for the mature octameric complex to achieve ciliary localisation. Once at the basal body, the BBSome recruits RAB3IP (Rabin8), the guanine nucleotide exchange factor for RAB8A. RAB8A-GTP then promotes vesicle docking and fusion at the ciliary base, driving ciliary membrane extension. BBS1 also directly engages LZTFL1 (BBS17), a cytoplasmic regulator of BBSome–IFT coupling, thereby coordinating anterograde and retrograde intraflagellar transport of ciliary cargo.

Key Signalling Roles

A well-characterized function of BBS1 is the regulation of Smoothened (SMO) trafficking into and out of the primary cilium, a prerequisite for Sonic Hedgehog (SHH) pathway activation. Loss of BBS1 results in defective SMO accumulation at the ciliary tip and attenuated SHH transcriptional output. BBS1 additionally controls the ciliary levels of several Class A GPCRs, including somatostatin receptor 3 (SSTR3) and melanocortin-4 receptor (MC4R), the latter being relevant to hypothalamic regulation of energy homeostasis. Disruption of these trafficking events has broad downstream consequences for neuronal and metabolic signalling.

Disease Relevance — Bardet-Biedl Syndrome

Mutations in BBS1 are among the most frequent monogenic causes of Bardet-Biedl syndrome (BBS; OMIM #209900), a pleiotropic autosomal-recessive ciliopathy. The clinical hallmarks include progressive rod–cone dystrophy leading to blindness, polydactyly, truncal obesity, renal structural anomalies, hypogonadism, and cognitive impairment. The missense substitution p.Met390Arg (M390R) in BBS1 is the single most prevalent BBS-causing allele in Northern European populations, disrupting the C-terminal domain interface required for BBSome integrity. BBS is now classified within the broader spectrum of ciliopathies, and BBS1 model systems have been central to dissecting ciliary trafficking pathways.

Research Utility

BBS1 antibodies are employed to assess BBSome integrity by Western blot — loss of BBS1 expression destabilises multiple other BBSome subunits — and to localise the complex by immunofluorescence at the basal body and ciliary axoneme. Immunohistochemical profiling of BBS1 in retinal, renal, and hypothalamic sections provides tissue-level context for ciliopathy phenotypes. Given BBS1's role as a scaffold, its detection serves as a functional proxy for overall BBSome status in patient-derived cells, knockout models, and siRNA knockdown experiments.

Gene & Protein Reference

Gene Symbol	BBS1

HGNC	HGNC:966
NCBI Gene ID (Human)	582
NCBI Gene ID (Mouse)	67378
Ensembl	ENSG00000174483
OMIM	209901
UniProt (Human)	P16066
UniProt (Mouse)	Q3UGC0
Protein Family	BBSome complex / WD-repeat β-propeller superfamily
Predicted MW	67.6 kDa
Observed MW	~70 kDa (Western blot; slight upward shift common for WD-repeat proteins)
Chromosome	11q13.2
Paralogue	BBS2 (shares C-terminal GAE-like domain architecture)
Key Substrates	Not a proteinase; facilitates ciliary trafficking of SMO, SSTR3, MC4R, and other GPCRs/ion channels
Activated by	RAB8A-GTP (cooperative); LZTFL1-mediated coupling to IFT machinery
Inhibited by	No canonical enzymatic inhibitor; dominant-negative M390R allele disrupts BBSome assembly

About Triple Point Biologics

With over 30 years dedicated to antibody production, Triple Point Biologics is a Canadian company and the premier resource for proteinase and proteinase inhibitor research. Products have been cited in thousands of peer-reviewed publications.

The domain-specific antibody strategy — available in standard, ATK, SPA, and GSK kit formats — delivers predefined epitopes, built-in peptide-neutralized negative controls, and superior specificity for Western blot.

Website: www.triplepointbiologics.com