Broad uveitis aetiology	Examples
Undifferentiated	Uveitis of unknown cause following investigation. It is alternatively termed “idiopathic”, “primary”, “not otherwise specified” or “incompletely classifiable”.
Infections	Includes viral (herpes simplex, varicella zoster, cytomegalovirus, human immunodeficiency virus), bacterial (*treponema pallidum, mycobacterium tuberculosis*) and parasitic (*toxoplasma gondii*) agents
Systemic immune-mediated disease	Includes rheumatological diseases (see Table 2) as well as multiple sclerosis, tubulo-interstitial nephritis with uveitis and Vogt-Koyanagi-Harada
Trauma	Uveitis typically develops a few days following blunt eye trauma
Ocular syndromes	Includes HLA-B27–associated acute anterior uveitis without systemic disease, Fuchs’ heterochromic cyclitis, and white dot syndromes (serpiginous choroidopathy, multifocal choroiditis, birdshot choroidopathy, acute posterior multifocal placoid pigment epitheliopathy)
Masquerade syndromes	Presentations that mimic uveitis are neoplastic (lymphoma being the most common in entire group, leukaemia, metastases, retinoblastoma), and non-neoplastic (foreign body, amyloidosis, retinal detachment)
Medication reactions	Most commonly anti-TNFs, bisphosphonates, check point inhibitors, hormone replacement therapy

Table 1: Aetiology of uveitis

This table summarizes the various causes of uveitis, categorized by their underlying mechanisms. The examples provided are representative but not exhaustive. TNF, Tumor Necrosis Factor; HLA, Human Leukocyte Antigen.

Rheumatological aetiology	Systemic features	Ocular features
Axial Spondyloarthritis*	Lower back pain, peripheral arthritis, enthesitis, gastrointestinal disturbance	Unilateral, recurrent acute anterior uveitis
Behçet's syndrome	Oral and genital ulceration, peripheral arthritis, gastrointestinal disturbance, vasculitis, erythema nodosum, pseudofolliculitis	Bilateral, and often severe, panuveitis with associated retinal vasculitis
IBD-associated arthritis*	Gastrointestinal disturbance, peripheral arthritis	Anterior and/or intermediate uveitis
JIA	Peripheral arthritis	Unilateral or bilateral chronic anterior uveitis
Kawasaki's	Hand and foot swelling/redness/desquamation, conjunctivitis, fever, lymphadenopathy	Bilateral anterior uveitis with conjunctivitis
Lyme disease	Vary by disease stage but include erythema migrans, malaise, arthritis and lymphadenopathy initially, progressing to neurological and cardiac involvement, nephritis and hepatitis	Variable - can include anterior, intermediate, posterior or panuveitis depending on disease stage
	Blau Syndrome: Granulomatous dermatitis and arthritis	Bilateral panuveitis with chorioretinitis

Monogenic Autoinflammatory Syndromes	Cryopyrin-associated periodic syndrome: Rash, fever, arthralgia, hearing loss	Conjunctivitis, episcleritis, uveitis
	TNF receptor-associated periodic fever syndrome: Fever, arthritis, serositis, rash	Conjunctivitis, periorbital swelling, multifocal choroiditis
Psoriatic arthritis*	Psoriasis, peripheral or axial arthritis	Chronic, potentially bilateral, anterior or intermediate uveitis
Reactive arthritis*	Acute oligo-arthritis plus enthesitis and/or dactylitis, typically preceded by gastrointestinal or genitourinary infection	Acute unilateral anterior uveitis and/or conjunctivitis
Relapsing polychondritis	Recurrent cartilaginous inflammation of auricular, nasal and tracheal cartilage, non-erosive inflammatory arthritis, hearing loss, speech difficulties	Acute unilateral, anterior uveitis, episcleritis or scleritis
Rheumatic fever	Migratory arthritis (typically large joints), erythema marginatum, subcutaneous nodules and carditis, typically preceded by group A streptococcal infection	Bilateral anterior uveitis
Rheumatoid arthritis	Peripheral arthritis, fever, fatigue	Most commonly episcleritis or scleritis, with few episodes of anterior uveitis
Sarcoidosis	Malaise, fever, weight loss, pulmonary symptoms, erythema nodosum, arthritis, lymphadenopathy, skin changes	Acute or chronic anterior or intermediate uveitis
Sjögren's	Lacrimal and salivary gland dysfunction, fatigue, polyarticular arthritis	Anterior and/or intermediate uveitis

SLE	Fatigue, fever, myalgia, arthritis, mucocutaneous involvement (malar rash, discoid lesions, photosensitivity, oral ulcers), vasculitis, nephritis, pleuritis, pericarditis, neuropsychiatric symptoms	Rare but reported

Table 2: Clinical features of rheumatic conditions associated with uveitis.
This table details rheumatological aetiologies of uveitis and their associated systemic features and ocular manifestations. The presentations of uveitis described are the most common, but alternative presentations can occur. *Uveitis associated with these conditions is collectively termed HLA-B27 uveitis. IBD, inflammatory bowel disease; JIA, juvenile idiopathic arthritis; SLE, systemic lupus erythematosus.

bDMARD		Uveitis Evidence		Rheumatology Approved Practice					
Drug class	Agent	Adults	Children	AxSpA	IBD	Psoriatic arthritis	Rheumatoid Arthritis	JIA	MAIs
TNF inhibition	Adalimumab	Strong	Strong	MHRA/FDA/EMA	MHRA/FDA/EMA	MHRA/FDA/EMA	MHRA/FDA/EMA	MHRA/FDA/EMA	
	Certolizumab	Weak for AAU in AxSpA	Weak	MHRA/FDA	FDA	MHRA/FDA	MHRA/FDA		
	Etanarcept	Strong against	Strong against	MHRA/FDA/EMA		MHRA/FDA/EMA	MHRA/FDA/EMA	MHRA/FDA/EMA	
	Golimumab	Weak for AAU in AxSpA	Weak	MHRA/FDA/EMA	NICE/FDA/EMA	MHRA/FDA/EMA	MHRA/FDA/EMA	MHRA/FDA/EMA	
	Infiximab	Moderate	Moderate for high dose (6-10 mg/kg every 4-6 weeks)	MHRA/FDA/EMA	MHRA/FDA/EMA	MHRA/FDA/EMA	MHRA/FDA/EMA		
IL1 inhibition	Anakinra	Weak for Behçet's uveitis, no evidence for others	Moderate for MAIs-U				MHRA/FDA	MHRA/EMA	MHRA (CAPS and FMF)

	Canakinumab	Weak for Behçet's uveitis, no evidence for others	Moderate for MAIs-U					MHRA/EMA/FDA	MHRA (CAPS, TRAPS, FMF)
IL6 inhibition	**Tocilizumab**	Moderate (for IV administration not SC)	Moderate (for IV administration not SC)				MHRA/FDA	MHRA/FDA/EMA	
	Sarilumab	Moderate	No evidence				MHRA/FDA/EMA		
IL17 inhibition	**Secukinumab**	Moderate against (for SC administration). Positive results for IV administration	No evidence	MHRA/FDA/EMA		MHRA/FDA/EMA		MHRA/FDA/EMA*	
IL12/23 inhibition	**Ustekinumab**	Weak	No evidence		MHRA/FDA/EMA	MHRA/FDA			
CD20 inhibitor	**Rituximab**	Weak	Weak				MHRA/FDA/EMA		
CTLA-4 analog	**Abatacept**	Weak	Weak			MHRA/EMA	MHRA/FDA/EMA	MHRA/EMA	
JAK inhibition	**Tofacitinib**	Weak	Weak	MHRA/FDA/EMA	MHRA/FDA/EMA	MHRA/FDA/EMA	MHRA/FDA/EMA	MHRA/FDA/EMA	
	Filgotinib	Moderate	Weak		MHRA/EMA		MHRA/EMA		
	Baricitinib	Weak	Weak				MHRA/FDA/EMA	MHRA/EMA	

Table 3: Licensed medications according to rheumatological conditions categorised by pathway of treatment

The table lists various bDMARDs with their evidence levels for treating adults and children with uveitis, based on information collated from consensus guidelines. The colour-coding is linked to the evidence-level in patients with uveitis: strong green for RCTs, . For adults, the evidence predominantly addresses non-infectious posterior uveitis, including Behcet's disease and sarcoidosis. For children, the evidence is primarily derived from studies on populations with JIA-U. Specific considerations regarding dosage and administration are included, along with indications of whether the bDMARDs are licensed by NICE or FDA. Adalimumab is the only biologic approved for uveitis. Certain medications are licensed only for specific subtypes of a disease, such as secukinumab*, which is approved solely for psoriatic JIA and enthesis-related JIA. AxSpA: Axial Spondyloarthritis, bDMARD: Biologic Disease Modifying Antirheumatic Drug, EMA: European Medicines Agency, FDA: Food and Drug Administration, IBD: Inflammatory Bowel Disease, JIA: Juvenile Idiopathic Arthritis, IL: Interleukin, IV: Intravenous, MHRA: Medicines and Healthcare products Regulatory Agency, SC: Subcutaneous, TNFi: Tumour Necrosis Factor inhibitor.

Research priorities	Examples
1. Early detection and diagnostic accuracy	Discriminating disease aetiology Biomarkes of uveitis risk Earlier uveitis detection
2. Biomarkers of disease acitivty and treatment response	Disease acitivty scores for adults and children Biomarkers of disease prognosis and treatment response Clincial trials for treatment withdrawal
3. Novel therapies	Identifying biological pathways and novel drug targets Optimising drug delivery

Table 4: Future directions for uveitis management