Supplementary CTD Table I. The primary and secondary unmet scientific needs within Sjögren's syndrome with regard to translational science, clinical science and therapeutic trials, and clinical care.

	Primary Unmet Need	Secondary Unmet Needs
Translational science	Understanding pathogenetic mechanisms leading from localized disease to systemic disease to lymphoma	Evaluation of the role of pathogens in driving disease
	Development of animal models that will be used in pre-clinical drug development	Integration of molecular pathology into the clinical phenotyping
	Indentifying shared pathogenetic mechanisms and prognostic factors between Sjögren's, SLE, and RA (*e.g.* primary vs secondary Sjögren's)	
Clinical science and therapeutic trials	Well-developed, validated diagnostic tools including:	Increased awareness/early diagnosis
	a) patient-defined outcome measures in independent cohorts	Develop and validate imaging techniques [including ultrasound, functional and molecular imaging]
	b) composite disease measures	
	c) measures targeting specific organ involvement	
	Understanding the relationship between Physician and PRO measures	
	Developing predictors of response (and non-response)	
	Developing targeted therapy based on a sound understanding of pathogenesis and using precision medicine to improve response	
Clinical care	Early diagnosis of reversible disease	
	Management of fatigue and depression	
	Effective therapeutics: symptomatic as well as systemic	

Supplementary CTD Table II. The primary and secondary unmet scientific needs within systemic sclerosis with regard to translational science, clinical science and therapeutic trials, and clinical care.

	Primary Unmet Need	Secondary Unmet Needs
Translational science	Identification of subtypes and origin of fibroblasts as target for therapies	Evaluation of the role of pathogens in driving disease
	Identify common and distinct pathways in fibrosis and vasculopathy	Integration of molecular pathology into the clinical phenotyping
	To identify and validate the role of autoantibodies as markers for pathways	
	Stratification for disease development and response for therapy	
Clinical science and therapeutic trials	Early detection of targets for therapy	Improvement of non-drug therapies
	Stratification of individuals for specific therapies (*e.g.* what is the optimal individual for stem cell transplantation or for other therapies?)	Identification and validation of disease biomarkers
Clinical care	Early detection of disease and complications Novel therapeutic development	Structure patient education Address under-recognized disease manifestations (calcinosis, fatigue)

Supplementary CTD Table III. The primary and secondary unmet scientific needs within inflammatory myositis with regard to translational science, clinical science and therapeutic trials, and clinical care.

	Primary Unmet Need	Secondary Unmet Needs
Translational science	Development of an international registry with standardised, validated, longitudinal collection of clinical and laboratory data and tissue and biologic fluid related biobank.	Identification of early cases and myositis cases at risk
		Better definition of the autoantibody repertoire
		Information on mechanism for persistent muscle weakness without inflammational damage
		Identify subgroups that share pathogenesis and where we can predict outcome
Clinical science and therapeutic trials	Better characterisation of patient phenotype, including identification of biomarkers for progression and response to specific therapy	Developing a validated definition of early disease
	Find a treatment for Inclusion Body Myositis	Understanding the long term co-morbidities associated with the various forms of myositis
	Effective treatment based on the pathogenesis of disease	Understanding the pathogenesis of the specific myositis of interest, with subsequent development of arget-based clinical trials
	Develop more sensitive outcome measures appropriate for subgroups of disease	
Clinical care	Improved development of infra-structure for multidisciplinary care via “centers of excellence” including physicians and allied health care professionals, biobanks, and patient registries	Understanding elements of cost-effective care
		Standardisation of imaging techniques

Supplementary CTD Table IVa-d. The primary and secondary unmet scientific needs within vasculitides [including IgG4 related disease] with regard to translational science, clinical science and therapeutic trials, and clinical care.

IVa: ANCA associated vasculitis

	Primary Unmet Need	Secondary Unmet Needs
Translational science	Need to profile patients before receiving any treatment	Understanding the patterns of disease and predicting organ disease distribution. Understanding the relationship between auto-antibody and pathological processes.
Clinical science and therapeutic trials	PR3 ANCA subset used as marker for poor prognosis, and new remission induction strategies for PR3 subset following RTX or CTX w/ anti IL-6, JAK in or anti GM-CSF	Developing therapies to promote discontinuing glucocorticoid therapy. RCTs of therapies targeting the complement pathway
Clinical care	New remission induction strategies Develop large, international longitudinal observational studies of well-characterised patients including clinical, imaging and bio-banking resources	

IVb: Behçet's vasculitis

	Primary Unmet Need	Secondary Unmet Needs
Translational science	As for all CTD	As for all CTD
Clinical science and therapeutic trials	Trial design issues for severe disease [outcome measures]	Trial of apremilast in severe disease RCT of TNF inhibition
Clinical care	Treatment strategies for severe disease: uveitis, CNS, vascular	Effective targeted glucocorticoid free therapies Better diagnostic tools Prevention of vision loss

IVc: Large vessel vasculitis

	Primary Unmet Need	Secondary Unmet Needs
Translational science	As for all CTD	As for all CTD
Clinical science and therapeutic trials as therapy	Confirmation of the promise of IL-6 inhibition	Imaging: Interpretation in F/U [including PET in F/U?] Outcome Measures Confirmation of value of IL-6 concentrations in F/U?
Clinical care	Effective targeted glucocorticoid free therapies Long term treatment free remissions Better diagnostic tools Prevention of organ loss	

IVd: IgG4 Related Disease

	Primary Unmet Need	Secondary Unmet Needs
Translational science	Development of classification criteria Delineation of disease mechanisms Understanding natural history of glucocorticoid treatment	
Clinical science and therapeutic trials	Therapies directed at B cell lineage Therapies directed at novel $CD4^+$ cytotoxic T cell	Outcome Measures Imaging and histopathology: Interpretation in F/U Long term treatment free remissions Identification of causative antigens
Clinical care	Better understanding of the natural history of the disease	