SHIONOGI Wish List

（2024/2/29版）

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SHIONOGIは、以下の研究テーマ・ニーズに関するシーズやパートナーを求めています

SHIONOGI Wish List

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【Infection（1/3）】

テーマ Theme	ニーズ "Needs"	アイデア・コンセプト Idea/Concept	創薬標的 DrugTarget	シーズ化合物 Seeds Compound	評価系・創薬技術 EvaluationSyetem・ DrugDiscoveryTechnology	診断技術・BM Diagnosis・ Biomarker
A cure for HIV and HBV that replaces chronic treatment	How to make a cure possible and how to confirm it			●		
						●
Drug discovery for pandemics caused by RNA viruses	Viral drug target functions and molecules that are expected to act broadly against RNA viruses	●				
			●			
				●		
Research on host response to infectious diseases	Establishment of treatments to prevent the severity and death of acute respiratory viral infections: Acquisition of intervention methods, drug discovery targets, and evaluation techniques	●				
			●			
				●		
					●	
						●
	By intervening with the immune system against chronic infections, it is possible to improve the severity of the infection or cure it completely.		●			
				●		
Mycobacterial infection	Non-tuberculous mycobacterial drug discovery improving infection mortality and quality of life: Target functions/molecules, and new modalities that can control them. Associated with these are rapid screening technologies, non-clinical evaluation systems that can be bridged with clinical practice, rapid diagnosis of target pathogen identification and drug susceptibility, methods for monitoring infection status, and innovative manufacturing technologies.	●				
		●				
			●			
					●	
						●
	Establishment of methods to prevent recurrence (relapse/reinfection)		●			
	Establishment of a diagnostic method that can determine early termination of treatment					●
	Search for indicators that allow patients to feel the effects					●
Intractable microbial infections	Drug discovery aiming for zero deaths due to infection: Target functions/molecules, and new modalities that can control them. Associated with these are rapid screening technologies, non-clinical evaluation systems that can be bridged with clinical practice, rapid diagnosis of target pathogenic microorganisms and drug susceptibility, methods for monitoring infection status, and innovative manufacturing technologies.	●				
			●			
				●		
					●	
						●

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【Infection（2/3）】

テーマ Theme	ニーズ "Needs"	アイデア･コンセプト Idea/Concept	創薬標的 DrugTarget	シーズ化合物 Seeds Compound	評価系･創薬技術 EvaluationSyetem･ DrugDiscoveryTechnology	診断技術･BM Diagnosis･ Biomarker
Respiratory diseases	New assets that can safely remove senescent cells, ideas for drug discovery, and technical infrastructure for evaluating senescent cell removal （It is known that senescent cells accumulate due to infection, and it is thought that this may be the starting point for the disease becoming more severe and difficult to treat. Therefore, we will build a foundation and consider applying it to new drug discovery to treat infections. Consider expanding the scope of development to respiratory diseases. ）	●				
			●			
					●	
	Drug discovery ideas, technology bases, and assets that restore/improve functions of degraded MΦ and T cells	●				
			●			
					●	
	Drug discovery targets and assets that can be expected to restore tissue and improve respiratory function in respiratory diseases		●			
				●		
MRSA infection	The Information & Method for undestanding the unmet medical needs for MRSA. (Especially the information about beta-lactam)	●				
LAP (Long-acting parenteral formulation) drug discovery	New fundamental technology and evaluation method for LAP				●	
Oral long-term drug	Fundamental technologies and evaluation methods to realize oral long-lasting drugs				●	
Nucleic acid analog drug discovery research	Mechanism analysis method, co-crystal structure analysis method (technology that easily obtains the crystal structure of the ternary complex of nucleic acid analog triphosphate + RNA + RdRp), etc.				●	
Drug discovery method aimed at covalent binders	Fundamental technologies and evaluation methods for drug discovery aimed at covalent binders				●	
Drug discovery technology and screening method for targeting undraggable targets	Fundamental technologies and evaluation methods for attacking undraggable targets				●	
Prediction systems and other drug discovery assets aimed at avoiding Ames	Ames avoidance measures and prediction tools in nucleic acid analog drug discovery, etc.				●	

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【Infection（3/3）】

テーマ Theme	ニーズ "Needs"	アイデア・コンセプト Idea/Concept	創薬標的 DrugTarget	シーズ化合物 Seeds Compound	評価系・創薬技術 EvaluationSyetem・ DrugDiscoveryTechnology	診断技術・BM Diagnosis・ Biomarker
Cell construction technology that allows various virus assays	Improving task efficiency and reducing time when performing various virus assays. Measures to address the current situation where it is difficult to simply increase tasks and horizontally compare activity values because the cell line changes for each virus. (CPE assay if possible. Techniques other than MucilAir.)				●	
Evaluation system that can demonstrate NTM clinical extrapolability and technology that can shorten the evaluation period	Shorter in-vivo testing and more accurate clinical extrapolation	●				
					●	

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【Central Nervous System（1/2）】

テーマ Theme	ニーズ "Needs"	アイデア･コンセプト Idea/Concept	創薬標的 DrugTarget	シーズ化合物 Seeds Compound	評価系･創薬技術 EvaluationSyetem･ DrugDiscoveryTechnology	診断技術･BM Diagnosis･ Biomarker
Biomarker research: fMRI	Mouse MRI measurement and analysis technology				●	
	Preparation of IT/analysis environment for constructing fMRI-based symptoms/neural network database				●	
Biomarker research: patient stratification	Biomarkers to identify patient segments that are particularly likely to benefit from drugs to improve cognitive function					●
Biomarker research: Others	Biomarker analysis technology to detect the mechanism of action on drug discovery targets and predict pathological changes					●
Drug discovery for the treatment of core symptoms of dementia	Drug targets or their tool compounds that can be effective even when dementia-related proteins accumulate in the brain. for example: 1) Targets that can enhance memory through transcription and translation 2) Targets that can enhance memory through energy metabolism		●			
	Efficacy evaluation system that can reflect brain activity （non-clinical）				●	
	Measurement technology for cell-specific biomarkers using extracellular vesicles (EV)				●	
Drug discovery for the treatment of behavioral and psychiatric symptoms of dementia (BPSD)	Novel drug target expected to be effective in treating BPSD		●			
	Pathological model and evaluation system enabling drug efficacy evaluation for BPSD				●	

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【Central Nervous System （2/2） 】

テーマ Theme	ニーズ "Needs"	アイデア・コンセプト Idea/Concept	創薬標的 DrugTarget	シーズ化合物 Seeds Compound	評価系・創薬技術 EvaluationSyetem・ DrugDiscoveryTechnology	診断技術・BM Diagnosis・ Biomarker
Drug discovery for the treatment of attention deficit hyperactivity disorder (ADHD)	New intervention points and targets different from existing mechanisms		●			
	Evaluation system that can quantitatively determine efficacy (non-clinical)				●	
	Evaluation system with higher human extrapolation				●	
	Intermediate phenotype (BioMarker) related to ADHD that is highly extrapolable to humans					●
	Translational medicinal biomakers					●
	Model construction and expansion of evaluation system				●	
	Ideas, concepts, and drug targets for the next generation ADHD drug and exploration of medical needs in response to changes in the external environment		●			
Dependency	Elucidation of dependence mechanisms and new drug targets		●			
	A simple and highly extrapolable evaluation model other than existing evaluation methods, such as CPP, discrimination, or self-administration				●	
	Novel drug targets for relapse prevention		●			
Autism spectrum disorder (ASD)	Novel drug targets based on ASD onset mechanism		●			

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【New Therapeutic Area（1/2）】

テーマ Theme	ニーズ "Needs"	アイデア・コンセプト Idea/Concept	創薬標的 DrugTarget	シーズ化合物 Seeds Compound	評価系・創薬技術 EvaluationSyetem・ DrugDiscoveryTechnology	診断技術・BM Diagnosis・ Biomarker
Sensorineural Hearing Loss: Non-clinical evaluation systems	High throughput and high resolution inner ear tissue analysis technology |Cutting-edge nervous system and inner ear tissue immunostaining analysis technology				●	
	High throughput and high resolution inner ear tissue analysis technology |Automated technology for inner ear whole mount tissue immunostaining				●	
	High throughput and high resolution inner ear tissue analysis technology |Image analysis technology using machine learning				●	
	Hearing loss non-clinical model, evaluation system | Nonclinical in vivo model of sudden hearing loss				●	
	Hearing loss non-clinical model, evaluation system | Non-clinical hearing loss model with less variation in pathogenesis				●	
	Hearing loss non-clinical model, evaluation system | Adult mouse ex vivo inner ear tissue evaluation system				●	
Sensorineural Hearing Loss: Non-clinical evaluation systems, DDS techniques	Inner ear administration technique | Intracochlear administration technique to mice and rats				●	
	Inner ear administration technique | Continuous injection technology into the inner ear using a pump for mice and rats				●	
Sensorineural Hearing Loss: Non-clinical evaluation systems	How to assess hearing quality | System for evaluating auditory nerve function				●	
Sensorineural Hearing Loss: Research on pathophysiology, diagnosis and stratification of hearing-impaired patients	Biomarker that can detect hair cell shedding					●
	Biomarker that can detect auditory neuropathy					●
	Biomarker that can detect inner ear inflammation and oxidative stress					●

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【New Therapeutic Area（2/2）】

テーマ Theme	ニーズ "Needs"	アイデア･コンセプト Idea/Concept	創薬標的 DrugTarget	シーズ化合物 Seeds Compound	評価系･創薬技術 EvaluationSyetem･ DrugDiscoveryTechnology	診断技術･BM Diagnosis･ Biomarker
Drug discovery research for sleep apnea syndrome｜Non-clinical /Clinical evaluation systems	High-throughput genioglossus muscle activity evaluation system ｜One of the important pathological traits of OSAS is the reduced responsiveness on the genioglossus muscle to negative pressure caused by respiratory effort resulting upper airway obstruction. How to evaluate this feature with EMG(ElectroMyoGraphy) is needed. Since the controlling nerves change depending on the sleep stage, it would be better if there was a system for simultaneous measurement with EEG(ElectroEncephaloGraphy).				●	
Drug discovery research for sleep apnea syndrome｜Non-clinical evaluation systems	Arousal threshold evaluation system ｜One of the important pathological traits of OSAS is the lowered arousal threshold that is the phenomenon in which awakening occurs when blood CO2 and O2 concentrations rise and negative pressure in the esophagus exceeds a certain threshold during sleep. How to assess this function in vivo is needed.				●	
	Loop gain evaluation system ｜Respiration is controlled by chemical regulation according to the blood CO2 or O2 concentration during sleep, but one of the important pathological traits of OSAS is that this control function becomes excessive and breathing becomes unstable. How to assess this function in vivo is needed.				●	
Drug discovery research for sleep apnea syndrome｜Understanding the unmet medical needs for OSAS	Ideas for exploring and validating OSAS needs. Proposals for RWD obtained from OSAS patients and ideas for its analysis.	●				
Allosteric modulator or biased ligand screening technology	A technology that can screen for allosteric modulators. The way to obtain compounds with high selectivity between receptor subtypes that have very similar binding sites. Biased ligand screening technology that may lead to avoidance of side effects by selecting 2nd signals				●	
Simultaneous evaluation technology for arousal threshold, loop gain, and genioglossus muscle	A method that can evaluate additive/synergistic effects by treating each OSAS phenotypic trait at the same time (some combinations may be possible, but not all).				●	

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【Vaccine（1/2）】

テーマ Theme	ニーズ "Needs"	アイデア・コンセプト Idea/Concept	創薬標的 DrugTarget	シーズ化合物 Seeds Compound	評価系・創薬技術 EvaluationSyetem・ DrugDiscoveryTechnology	診断技術・BM Diagnosis・ Biomarker
Themes related to predicting the emergence of new pathogens and mutant strains	Technologies related to predicting the emergence of new pathogens and mutant strains ｜In silico analysis method for predicting the emergence of pathogenic mutant strains that enable immune evasion and/or enhanced infectivity, and prediction method for next pandemic infectious disease species				●	
Antigen Design	Technologies related to search and design of vaccine antigens ｜New antigens that are vaccine candidates for infectious diseases, including viruses and bacteria		●			
	Technologies related to search and design of vaccine antigens ｜In silico techniques for searching for New antigens that are vaccine candidates for infectious diseases, including viruses and bacteria				●	
Particularization of vaccine antigens	Technologies related to particularization of vaccine antigens ｜New particle technology such as VLPs and nanoparticles to enhance the immunogenicity of antigens				●	
	Technologies related to particularization of vaccine antigens ｜New microparticulation technology capable of loading multiple antigens and enhancing cross-immunogenicity				●	
Vaccine antigen evaluation technology	Technologies related to vaccine antigen evaluation ｜Systems and evaluation systems that can predict the in vivo immunity induction ability of vaccine antigens in vitro				●	
	Technologies related to vaccine antigen evaluation ｜A small animal model that extrapolates highly to humans in evaluating the immunogenicity of vaccines				●	
	Technologies related to vaccine antigen evaluation ｜Protein engineering technology for optimal vaccine antigen design				●	

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【Vaccine（2/2）】

テーマ Theme	ニーズ "Needs"	アイデア・コンセプト Idea/Concept	創薬標的 DrugTarget	シーズ化合物 Seeds Compound	評価系・創薬技術 EvaluationSyetem・ DrugDiscoveryTechnology	診断技術・BM Diagnosis・ Biomarker
Antigen Design	Technologies related to search and design of vaccine antigens ｜Technology related to antigen design or technologies or screening method to enhance **cross-**immunogenicity or to expand the spectrum to pathogens of vaccines including both of Bcell and Tcell reactivity.				●	
New administration routes of vaccines	Technologies related to new administration routes of vaccines ｜New technologies related to new delivery systems that can effectively inducer mucosal immunity by nasal or oral administration routes				●	
	Technologies related to new administration routes of vaccines ｜Innovative ideas and concepts related to immunity induced by new administration routes	●				
Vaccine adjuvants	Vaccine adjuvants ｜New targets for creating adjuvants that can enhance the persistence of antibody induction		●			
	Vaccine adjuvants ｜New technologies for creating adjuvants that can enhance the persistence of antibody induction				●	
	Vaccine adjuvants ｜New targets for creating novel adjuvants that induce mucosal immunity in the nasal cavity and intestinal tract		●			
	Vaccine adjuvants ｜New technologies for creating novel adjuvants that induce mucosal immunity in the nasal cavity and intestinal tract				●	
	Vaccine adjuvants ｜Pre-clinical evaluation system (animal model, in vitro evaluation system) that can predict clinical side effects caused by adjuvants (local pain, fever, etc.)				●	

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【Drug Discovery Technology（1/2）】

テーマ Theme	ニーズ "Needs"	アイデア･コンセプト Idea/Concept	創薬標的 DrugTarget	シーズ化合物 Seeds Compound	評価系･創薬技術 EvaluationSyetem･ DrugDiscoveryTechnology	診断技術･BM Diagnosis･ Biomarker
Polyclonal Antibody Drug Development	Polyclonal Antibody Manufacturing Technology	●				
Research related to the analysis of simple RNA and, complexes of RNA and low-molecular-weight compounds	An efficient method for evaluating the three-dimensional structure of RNA (including highly accurate prediction method)				●	
Research on virtual screening of small molecule compounds against RNA targets	High through put in silico screening technology for RNA				●	
High through put in silico screening technology	virtual screening methods that can screen a large-scale virtual library with high accuracy and speed				●	
Research on protein design by in silico technology	Protein design methods utilizing state-of-the-art AI technologies				●	
Research on PROTACs, molecular glue	Technologies to identify targets that are the main cause of disease and would be beneficial to degrade (especially those related to infection diseases, excludes cancer and tumors)	●				
			●			
	Technologies that can comprehensively analyze on-target and off-target				●	
	Efficient evaluation method for degraders (cell-free if possible, including computational methods)				●	
Discovery of novel drug targets by PPI (protein-protein interaction) inhibitors	Identification of intracellular PPI targets for treatment of SHIONOGI's focus diseases including infectious diseases	●				
			●			
Intra-cellular drug delivery research or technologiesfor medium sized compounds	An efficient method for transferring peptide drug molecules into cells				●	
Research on docking of peptides to target proteins	Technology for highly accurate docking (SBDD) and simulation (LBDD) of peptide drug molecules. In particular, calculation methods or indicators to measure the degree of conformational locking of peptide drug molecules				●	
Automation in chemistry	An automated system in chemistry which can operate throughout the day				●	

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【Drug Discovery Technology（2/2）】

テーマ Theme	ニーズ "Needs"	アイデア・コンセプト Idea/Concept	創薬標的 DrugTarget	シーズ化合物 Seeds Compound	評価系・創薬技術 EvaluationSyetem・ DrugDiscoveryTechnology	診断技術・BM Diagnosis・ Biomarker
In vitro evaluation method for ocular toxicity	An in vitro model that can evaluate ocular toxicity and identify the mechanism of ocular toxicity				●	
Research on ototoxicity	An in vitro evaluation system that can evaluate damage and regeneration of inner ear hair cells and an in vivo evaluation system for ototoxicity using ABR (Auditory Brainstem Response), etc.				●	
System toxicology research	In silico toxicity mechanism analysis system that can estimate the toxicity mechanism from molecular networks, expression changes, etc.				●	
Imaging technology for organ toxicity	A technology for predicting toxicity target organs using live animal image diagnosis (CT, MRI, etc.) as a substitute for pathological examination or tests or pre-evaluation for prioritizationpre-evaluation for prioritization				●	
Technology that can identify drug targets with in silico/AI	Development of an alert system that roughly distinguishes whether it is adverse or non-adverse based on the input of biochemical data; ie., a system using AI and machine learning technology based on non-clinical biochemical parameter data (quantitative values) from toxicity studies conducted in-house				●	

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【CMC R&D Technology（1/2）】

テーマ Theme	ニーズ "Needs"	アイデア･コンセプト Idea/Concept	評価系･創薬技術 EvaluationSyetem･ DrugDiscoveryTechnology	診断技術･BM Diagnosis･Biomarker	その他 others
Crystal and powder properties of drug substances (small molecule)	Evaluation and control technology for crystal/powder properties of drug substances (small molecule)		●		
Innovative medium component for cell culture	To increase and improve cell culture performance for biologics production.	●			
LAP (Long-acting parenteral formulation) formmulation tecnology	･To avoid subcutaneous/intramuscular irritation ･To increase dose volume in subcutaneous/intramuscular		●		
	An inexpensive LAP formulation to be developed		●		
LAP formulation human PK prediction technology	To predict the human PK of LAP preparations in a short period of time.		●		
Oral administration long-acting formulation technology	To release the drug for NLT one week with an oral formulation.		●		
Long-acting formulation technology for improved absorption	To sustained release a drug improved absorption without reducing AUC and Ctrough.		●		
Stability improvement technology	To store products that are stored in the refrigerator at room temperature.		●		
Child-safe preservatives	To develop a suspension that does not allow microorganisms to grow for a long period of time.				●
orally disintegrating tablets (ODTs) formulation tecnology	Long-term patented technology for orally disintegrating tablets (ODTs) ｜Estimated patent term: Exclusivity period over 2040		●		

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【CMC R&D Technology（2/2）】

テーマ Theme	ニーズ "Needs"	アイデア・コンセプト Idea／Concept	評価系・創薬技術 EvaluationSyetem・ DrugDiscoveryTechnology	診断技術・BM Diagnosis・Biomarker	その他 others
Characterization technology of lipid particle and emulsion	Understanding of lipid particle and emulsion charcterization such as existence mode of the components, the component release profile in biological environment, particle solidness and membrane fluidity.		●		
Device technology for injectable formulation to administrate 2 types liquid with one shot	Enhancement usability without complicated preparation		●		
Nebulizer that can be used for pulmonary administration of drugs at home	Co-development of a nebulizer suitable for home administration				●
GMP manufacturing technology for ligand-modified mRNA-LNP (ligand addition technology after LNP formation)	To increase manufacturing feasibility in preparation for the launch of ligand-modified LNP formulations.		●		