

Category (科目区分)	Cluster of Metabolism and Information Systems		
Course Title (授業科目名)	Brain and Neurometabolic Function, Practice		
Instructors (担当者名)	Manatomo Toyono	Academic Year (配当年次)	1
Required Course / Elective Course (必修/選択)	Elective Course	Credits (単位数)	1
Class Format (授業形態)	Lecture		
Schedule (開講期間)	notification directly by E-mail after the registration.		
Class Date/Period (開講曜日・時間)	notification directly by E-mail after the registration.		
Course Outline/ Course Objectives (授業の概要・到達目標)			
Course outline To appreciate the molecular mechanisms of neurological function through understanding the molecular pathophysiology of inherited diseases, including metabolic diseases and channelopathies, as well as the neuroprotective mechanisms by controlling neuronal cell apoptosis against ischemia and hypoxia.			
Course objectives To explain the molecular basis of the neurological malfunctions in inherited diseases.			
Course Planning (授業計画)			
	Course Outline/ Course Objectives (授業の概要及び到達目標) (Contents of Class) ((授業内容))	Instructor (担当教員名)	Department (講座名) Class Room [実施場所]
1	1. N eurometabolic malfunctions in inherited metabolic diseases of glucose, amino acids, and lipids. 2. C hannelopathies in hereditary neuronal diseases. 3. C erebral and systemic circulations in neuronal diseases. 4. B iological protective responses against stress stimuli including ischemia and hypoxia in brain	Manatomo Toyono Atsuko Noguchi	Department of Pediatrics [Pediatric Office]
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Grading Criteria (成績評価の基準と方法)			
Grading is evaluated in terms of reports, instructor-directed lectures for 30 hours and self-directed learning for 15 hours.			
Contact Information (問い合わせ先(氏名, メールアドレス等))			
Name: Manatomo Toyono / E-mail: manatomo@doc.med.akita-u.ac.jp			
Comment (その他特記事項)			
Schedule could flexibly depend on circumstance of the attendee			