72nd Symposium: Clocks & Rhythms

Session 1 INTRODUCTION

WEDNESDAY 5/30/2007, 7:30 PM

S. Golden

#	lname	Title	Talk Length
1	Takahashi	Genetics and neurobiology of circadian clocks in mammals	35
2	Ptacek	Dissecting the basis of human circadian function	35
3	Sehgal	Cellular and molecular analysis of sleep in *Drosophila*	35
4	Evans	Nuclear receptors in clocks and rhythms	35

Session 2 CLOCKWORKS I / LIFESPAN

THURSDAY 5/31/2007, 9:00 AM

M. Young

#	lname	Title	Talk Length
5	Kondo	Circadian clock of cyanobacteria with Kai-oscillator	20
6	Rosbash	Is transcriptional feedback an important part of the core circadian clock machinery?	20
7	Hastings	Setting circadian clock speed in mammals	20
8	Sassone-Corsi	Chromatin remodeling and circadian control	20
9	Reppert	Migratory monarch butterflies—An informative circadian clock model	20
10	Loros	Outside the core but inside the system—Analysis of input and accessory oscillators in a circadian system	20
11	Kenyon	Genes that control aging and age-related disease in *C. elegans*	20

Session 3 POSTER SESSION I

THURSDAY 5/31/2007, 2:00 PM

#	lname	Title	Talk Length
12	Abbruzzese	The circadian expression of clock genes in nine healthy young men	
13	Abraham	PKCγ regulates the circadian forebrain clock by controlling cortical expression of *period* genes	
14	Acimovic	The role of Crem/Icer in the circadian regulation of cholesterol synthesis in the mouse liver	
15	Mihalcescu	Cyanobacterial clock, a stable phase oscillator with negligible intercellular coupling	
17	Rudic	A path to vascular disease through a dysfunctional biological clock	
18	Banerjee	*let-7* microRNA directly regulates the developmental time gene *lin-42*, the *C. elegans* homolog of the circadian timing gene *period*	
19	Barriga-Montoya	Pigment dispersing hormone induces changes in the receptor potential to light in the crayfish retinular cells depending on the circadian time	

20	Giebultowicz	Expression of clock and output genes in the male reproductive ducts of mice
21	Takeda	Melatonin receptor in circadian neurons in the cockroach *P. americana*
22	Benito	Cry expression and function in *Drosophila*
23	Bjarnason	Diurnal rhythms in gene expression in human oral mucosa—Significant gender differences
24	Blanco	Effects of variation in daily torpor and hibernation on reproductive and growth parameters in two groups of strepsirrhine primates (Galagidae and Cheirogaleidae)
25	Cao	Electrophysiological characterization of *Drosophila* clock neurons
26	Davidson	Differential response of Per2 gene expression to a phase advance in the mouse suprachiasmatic nucleus
27	Chen	Restriction of nuclear DNA replication to the reductive phase of the metabolic cycle protects genome integrity
28	Chévez	A maternal pheromone (2MB2) as an entraining cue of rabbit pups' circadian system
29	Collins	Circadian circuits controlling *Drosophila* behavior
30	Constance	Analysis of Kv3.1 and Kv3.2 potassium channel gene expression in mouse SCN
31	Cooper	Modeling multiple photopigment contributions in circadian photoreception
32	Daniels	Exploring metabolic pathways of 5'-AMP model of suspended animation in mammals
33	De Haro	A high-resolution temporal gene expression profile reveals novel circadian and ultradian oscillations in hepatic transcripts
34	De Paula	The multi-oscillator circadian system of *N. crassa*
35	DeBruyne	CLOCK and NPAS2 have overlapping roles within the SCN circadian clock
36	DeCoursey	Circadian aspects of hibernation in a rodent
37	Destici	microRNA-mediated regulation of the circadian clock
38	Dong	Subcellular localization of circadian clock proteins and the gating of cell division in cyanobacteria
39	Duffield	Inhibitor of DNA binding-2 (ID2) and ID4 regulation of the mammalian circadian photoentrainment mechanism
40	Edwards	Changing with the times—How the plant clock mechanism responds to different photoperiods
41	Esposito	Disruption of the circadian clock in breast cancer cells
42	Fink	Regulation of circadian genes by lipids and cAMP in the liver
43	Fujii	FRU^{M} is essential for male sex drive rhythm in *Drosophila*
44	Gachon	PPARα function is under the control of the circadian PARbZip transcription factors
45	Gall	Circadian rhythmicity in normal and enucleated infant rats—Implications for the development of noctunrnality and diurnality
46	Gatfield	Circadian transcription of a miRNA in mouse liver

47	Gery	The clock gene Per2 links the circadian system to the estrogen receptor
48	Gibbs	Identification and characterization of circadian period proteins within specific cell types of the mammalian lung
49	Goel	Circadian rhythm profiles in night eating syndrome
50	Gooch	Light and temperature phase response curves in *Neurospora* using bioluminescence
51	Gooley	Spectral sensitivity of the human circadian timing system
52	Grimaldi	Search for non-histone substrates of clock acetyltransferase activity
53	Guilding	Circadian and neurochemical regulation of neuronal activity in the lateral habenula
55	Hannibal	Synaptic contact between melanopsin containing retinal ganglion cells and rod bipolar cells
56	Harada	Changes in gender differences of circadian typology of Japanese adolescents
57	Harrisingh	Genetic analysis of CA^{2+} signaling in circadian clock neurons
58	Hartley	Food entertainment affects cell cycle ratios in bone marrow
59	Hirayama	Zebrafish clock—Role of the antioxidant enzyme catalase in light-responsive control of circadian genes
60	Hofstetter	QTL for circadian period on mouse chromosome 1—Fine mapping studies
61	Holtman	Comprehensive analysis of the *S. elongastus* circadian clock through functional genomics
62	Hong	A mathematical model of *N. crassa* circadian rhythms provides insights to molecular mechanisms
63	Hooven	Circadian variation in physiological and molecular responses to pyrethroid pesticides in *Drosophila*
64	Hrushesky	Evidence (transverse and longitudinal) for medically relevant circannual and circahemidecadal and circadecadal human time structures
65	Hull	Comparison of circadian period measured under field and forced desynchrony conditions in totally blind subjects
66	Iigo	Circadian regulation of rhythmic melatonin release from the teleostean pineal organ—A comparative study
67	Iskra-Golec	Four hour period rhythms in information processing speed
68	Izumo	Monitoring and quantifying circadian gene expression activities in mammalian fibroblast cells
69	Jackson	Dopamine D4 receptors and synchronization of circadian clock output from multiple cell types in mouse retina
70	Jakubcakova	Light entrainment of the mammalian circadian clock by a PRKCA-dependent posttranslational mechanism
71	Joho	Role of Kv3 potassium channels in arousal-state dynamics
72	Jud	Disruption of both Per1 and Rev-Erbα leads to a type 0 phase response curve in mice
73	Kaasik	Characterization of GSK3 dependent circadian phosphoproteome

74	Kadener	Translational control of circadian rhythms in *Drosophila*
75	Kießling	Hierarchical resynchronization of peripheral circadian oscillators in vivo
76	Lee	Forty quantitative trait loci for circadian clock identified in *N. crassa*
77	LiWang	The switch in KaiC that KaiA and KaiB flip back and forth to induce rhythmic KaiC phosphorylation
78	Knutti	Liver-specific restoration of the circadian clock using conditional *bmal1* rescue mice
79	Ko	Ras-Erk-CaMKII serves as a universal output pathway to regulate ion channels in chick retina photoreceptors
80	Koike	Transcriptional regulations of a mammalian clock gene, Per2
81	Kokolus	The fountain protein B-cell epitope model—Embedded rhythmic-oscillating epitopes of globular proteins—An encouraging statistical outcome of the model when compared with the predictions from thirteen sequential epitope models
82	Kon	Pharmacological analysis of clock protein kinases participating in molecular oscillation in Rat-1 fibroblasts
83	Kondratov	Circadian transcriptional factor BMAL1 controls oxidative stress response and aging
84	Sadacca	Neuropilin-semaphorin signaling in the adult suprachiasmatic nucleus
85	Kuhlman	Local GABAergic synaptic connectivity between suprachismatic nucleus neurons is sparse
86	Kurabayashi	Molecular studies on phosphorylation of cryptochrome2 at Ser557

Session 4 NEUROANATOMY AND CIRCUITS

THURSDAY 5/31/2007, 7:30 PM

A. Sehgal

#	lname	Title	Talk Length
87	Menaker	Circadian photoreception in vertebrates	20
88	Hattar	Melanopsin neurons are essential for non-image forming visual functions in mammals	20
89	Helfrich-Forster	The lateral neurons of *D. melanogaster*—New insights about their morphology and function	20
90	Silver	Cells and circuits in the wiring of the brain clock	20
91	Saper	Inducible clocks—Living in an unpredictable world	20
92	Okamura	Molecular clocks in mammalian circadian system	20
93	Albrecht	Regulation of the dopamine degrading enzyme monoamine oxidase a by the circadian clock	20

Session 5 CLOCKWORKS II AND PROLIFERATION

FRIDAY 6/1/2007, 9:00 AM

C. Green

#	lname	Title	Talk Length
94	Brunner	Subcellular dynamics of *Neurospora* clock protein complexes	20

95	Dunlap	A role for casein kinase-2 in the mechanism underlying circadian temperature compensation	20
96	Young	A PER/TIM/DBT interval timer for *Drosophila*'s circadian clock	20
97	van der Horst	Mammalian cryptochromes and the circadian clock	20
98	Sancar	Structure and function of animal cryptochromes	20
99	Koeffler	Role of circadian genes Per1 and Per2 in cancer	20
100	Levi	Implications of circadian timing system and cell cycle interactions for cell proliferation and cancer therapeutics	20

Session 6 POSTER SESSION II

FRIDAY 6/1/2007, 2:00 PM

#	lname	Title	Talk Length
101	Lamia	Liver BMAL1 is important for glucose homeostasis	
102	Chappell	In vitro steroid treatment modulates temporal protein profiles of large-conductance CA^{2+}-activated potassium (BK) channels in GT1-7 cells, correlated with changes in GnRH secretion	
103	Li	Mutations affecting the FRQ-less oscillator of *Neurospora*	
104	Allada	*Clockwork orange*, a bHLH orange repressor, important for circadian clock amplitude in *Drosophila*	
105	Lyons	Circadian suppression of long-term memory formation in *Aplysia*	
106	Marcheva	Impact of circadian gene network on pancreatic beta cell function and diabetes	
107	Matsumoto	Lark activates posttranscriptional expression of an essential mammalian clock protein, Period1	
108	Mayeda	QTL for circadian period on mouse chromosome 12	
109	McLoughlin	The role of visual phototransduction genes in zebrafish circadian rhythms	
110	McMahon	GABAergic regulation of the mouse retinal circadian clock	
111	McMaster	Circadian expression of pro-inflammatory cytokines in peripheral cells	
112	Mehra	A role for casein kinase-2 in the mechanism underlying circadian temperature compensation	
113	Menet	Linking CLK/CYC transcriptional activation and repression to biochemistry and in vivo phenotypes	
114	Meng	Insight into retinoid regulation of the circadian clock using a novel Rev-Erbα agonist to generate a PRC for Bmal1 and Per2	
115	Moulager	Integration of metabolic and circadian signals in the control of cell division	
116	Muskus	A mutational analysis of casein kinase Iε/δ and its circadian target, Period protein	
117	Nikiforov	Role of non-neural signals in regulation of circadian rhythms of gene expression in mouse peripheral organs	

118	Nishiwaki	A sequential program of dual phosphorylations of KaiC as a basis for circadian oscillation in cyanobacteria
119	Oster	Microarray analysis identifies novel components of melanopsin signaling
120	Oyama	The resilience of the cyanobacterial circadian clock embedded in the Kai-protein oscillatory system in vitro
121	Park	Daily and monthly variations in melatonin receptors of a reef fish with lunar-synchronized periodicity
122	Paulose	Circadian rhythms in mouse stem cells
123	Piggins	Scheduled wheel-running stabilizes and sculpts behavioral rhythms in mice deficient in neuropeptide signaling
124	Plikus	Hair cycles and hair waves in a hair follicle population
125	Pulivarthy	Circadian gating of Per2 induction, phase shift and amplitude in cultured mammalian cells
126	Moynihan Ramsey	Effect of glucagon-like peptide-1 signaling on energy balance and circadian behavior in mice
127	Rawashdeh	Circadian modulation of long-term memory by melatonin in zebrafish
128	Oates	A predictive theory of coupling and noise in the segmentation clock
129	Rihel	Small molecule screen for sleep/wake regulators in zebrafish larvae
130	Robles	Ex vivo analysis of clock protein complexes in the mouse
131	Rosenwasser	Chronobiology of ethanol—Towards animal models
132	Markson	Deciphering the mechanism of an in vitro circadian oscillator
133	Sachdeva	Response of the molecular clock to conditions of metabolic stress
134	Sahar	Circadian chromatin remodeling—Is NPAS2 the functional paralogue of clock?
135	Saithong	The circadian clock regulates *Arabidopsis* flowering under photoperiods through multiple mechanisms
136	Sani	Changes in circadian rhythms of renal rhodanese activity in mice within two months after birth
137	Schwartz	Dual regulation of the pineal melatonin rhythm in forced desynchronized rats
138	Scott	Effects of melatonin on neuronal activity in the rat suprachiasmatic nucleus (SCN) in vitro
139	von Schantz	Nuclear translocation of two polymorphic variants of the Per3 protein
140	Williams	Chromosome compaction as driving force for circadian phase response in the cyanobacterium *S. elongatus*
141	Smith	Chromosome compaction—A phase determinant of gene expression rhythms in the cyanobacterium *S. elongatus*
142	Sprouse	CKIε inhibition produces phase delays of activity rhythms in Cynomolgus monkeys—A pilot study
144	Stoleru	Neural basis of circadian rhythm seasonal adaptation in *Drosophila*

145	Stratmann	Circadian *Dbp* transcription—Towards the analysis in real-time and in individual cells
146	Takemura	Moonlight induces *Period2* transcripts in the pineal gland of a reef fish *S. guttatus*
147	Terauchi	The ATPase activity of KaiC as the circadian timer in cyanobacteria
148	Thompson	High-throughput genetic profiling and in situ hybridization reveal sleep- and sleep deprivation-associated functional circuitry
149	Toth	Reduction of *gigantea* function enhances light sensitivity of the *Arabidopsis* circadian clock
150	Takeda	*N*-acetyltransferases in *B. mori*—As an output regulator of the circadian system
151	van der Linden	Temperature and light-entrained circadian rhythms in *C. elegans*
152	van der Schalie	Constitutive expression of Cry1 or Cry2 does not abolish rhythms in cycling cells
153	Vitalini	The *Neurospora* HOG pathway functions in output from the circadian clock
154	Wang	Circadian regulation of development
155	Wang	Energy landscape of biological clocks in cellular networks
156	Weinert	Circadian rhythms in an inbred lineage of Djungarian hamsters with a strongly attenuated ability to synchronize
158	Wood	Circadian disruption and cancer
159	Wu	Chronotherapeutic augmentation of antidepressant medication treatment can enhance rapidity and magniture of response
160	Wu	Tethered δ-ACTX-Hv1a expression in clock neurons disrupts circadian locomotor activity
161	Xu	Clock in fat body regulate *Drosophila* feeding rhythm and glycogen metabolism
162	Yang	Circadian profiling of nuclear receptor expression reveals cell-autonomous oscillation of hormone signaling
163	Yelamanchili	Shedding light on the melanopsin signaling pathway—Understanding the biochemical and molecular properties of mouse melanopsin
164	Yin	The orphan nuclear receptor Rev-Erbα is a transcriptional repressor of hepatic glucose metabolism
165	Yoshitane	Antiphasic phosphorylation of CLOCK and BMAL1
166	Yu	A role for doubletime in bridging phosphorylation of PER and CLK by other kinases
167	Zoran	Rhythmic release of ATP modulates intercellular communication among rat suprachiasmatic nucleus cells

Session 7 DEVELOPMENT AND AGING

FRIDAY 6/1/2007, 7:00 PM

D. Bell-Pedersen

#	lname	Title	Talk Length
168	Raff	HARRIS LECTURE: Intracellular timers in oligodendrocyte precursor cells	20
169	Hardin	Circadian clock cell development in *Drosophila*	20

#	lname	Title	Talk Length
170	Pourquie	Segmenting the spine—The vertebrate segmentation clock	20
171	Kageyama	Ultradian oscillators in somite segmentation and other events	20
172	Guarente	Sirtuins, aging and disease	20
173	Ruvkun	Lifespan regulation by evolutionarily conserved genes essential for viability	20

Session 8 SYSTEMS APPROACHES — SATURDAY 6/2/2007, 9:00 AM

U. Schibler

#	lname	Title	Talk Length
174	Golden	Integrating the circadian oscillator into the life of the cyanobacterial cell	20
175	Kay	Decoding the transcriptional logic within circadian clock networks—A comparative approach	20
176	Bell-Pedersen	A multi-oscillator circadian clock modulates a MAPK pathway to regulate gene expression in *Neurospora*	20
177	Chory	Interactions between photocycles, thermocycles, and endogenous programs in plants	20
178	Millar	Dissecting and reconstructing the multi-loop architecture of the circadian clock with systems biology	20
179	Hogenesch	High resolution time course analysis for gene expression from liver—Evidence for non-24 hour transcriptional oscillations	20
180	Tu	Logic of the yeast metabolic cycle	20

Session 9 HUMAN CLOCKS AND RHYTHMS — SATURDAY 6/2/2007, 2:00 PM

S. McKnight

#	lname	Title	Talk Length
181	Roenneberg	Epidemiology and genetics of the circadian clock in *H. sapiens*	20
182	Brown	Molecular clocks in human populations	20
183	Czeisler	Human circadian rhythms	20
184	Yanagisawa	Orexins in sleep/wake and energy homeostasis	20
185	Bourgeron	Keeping track of time, synaptogenesis and autism spectrum disorders	20

DORCAS CUMMINGS LECTURE — SATURDAY 6/2/2007, 5:30 PM

Charles Czeisler: “Work hours, sleep and safety: Physician heal thyself”

Session 10 POST-TRANSCRIPTIONAL AND POST-TRANSLATIONAL MECHANISMS — SUNDAY 6/3/2007, 9:00 AM

M. Rosbash

#	lname	Title	Talk Length
186	Green	Post-transcriptional regulation of mammalian circadian clock output	20
187	Keene	Post-transcriptional RNA operons as potential regulators of biological clocks	20
188	Hastings	The *Gonyaulax* clock—Problems and prospects	20
189	Kramer	Posttranslational mechanisms in the mammalian circadian clock	20

190	Liu	Posttranslational regulation of the *Neurospora* circadian negative feedback loop	20
191	Somers	Blue-light enhanced post-translational control of circadian cycling	20
192	Pagano	The ubiquitin ligase SCF^{Fbxl3} controls the oscillation of the circadian clock by directing the degradation of cryptochrome proteins	20

Session 11 SEASONS AND MOOD

SUNDAY 6/3/2007, 2:00 PM

P. DeCoursey

#	lname	Title	Talk Length
193	Edery	Thermosensitive splicing of a clock gene and seasonal adaptation	20
194	Kondo	Circannual clock and HP complex in hibernation control system	20
195	Lewy	The circadian biology of melatonin in humans and its clinical implications	20
196	McClung	Mania-like behavior induced by disruption of clock	20

Session 12 MODELS

SUNDAY 6/3/2007, 7:00 PM

M. Zatz

#	lname	Title	Talk Length
197	Johnson	Visualizing the ticking of the cyanobacterial circadian clockwork	20
198	Ueda	Control and design of mammalian clocks	20
199	Virshup	Reversible protein phosphorylation regulates the clock	20
200	Naef	Interplay of limit-cycle stability, cellular noise and oscillator coupling in circadian systems—Applications to bioluminescence recordings	20
201	Klevecz	Folding phenotypes—Evolution of the clock from yeast to man	20
202	Schwartz	The chronobiology of cohabitation	20

Session 13 GENETICS OF RHYTHMS

MONDAY 6/4/2007, 9:00 AM

R. Silver

#	lname	Title	Talk Length
203	Cahill	Circadian rhythms in zebrafish	20
204	Hall	Principles and problems revolving round rhythm variants	20
205	Stanewsky	Isolation of mutants that interfere with the light- and temperature synchronization of *Drosophila*'s circadian clock	20
206	Blau	Functional genomics of *Drosophila* pacemaker neurons	20
207	Loudon	Global acceleration of circadian timing in brain and periphery in a mouse model of human sleep disorder	20
208	Antoch	Differential response of wild-type and clock mutant mice to low doses of ionizing radiation	20
209	Tafti	Molecular correlates of sleep loss—Genotype, circadian, and homeostatic effects	20

Session 14 ENTRAINMENT AND PERIPHERAL CLOCKS

MONDAY 6/4/2007, 2:00 PM

J. Dunlap

#	lname	Title	Talk Length
210	Merrow	Entrainment of the *Neurospora* clock—A simple system for showing systematic properties that regulate chronotype	20
211	Lee	Is constant darkness a signal for hibernation?	20
212	Schibler	Peripheral clocks—The regulation of circadian gene expression	20
213	Weitz	Liver-specific genetic ablation or rescue of circadian clock function	20
214	Greenspan	How wide-ranging is the gene network affecting the clock in *Drosophila*?	20