생명과학연구론 2
Lecture 1

 생명과학연구론 1
생명과학연구론1
(1st semester, 2013)

Professor: Seong-Hoon Ahn (031-400-5518, shahn.lecture@gmail.com)

Introduction:
졸업논문발표에 대한 내용과 방법을 숙지하고, 개인이 선택한 논문주제에 대해 발 표.

Schedule:
1. 1 min Presentation (Apr 16, 2013) 2:00PM ~ 4:00PM (Y25-0413)
2. Presentation group 1 (Jun 1, 2013) 9:00AM ~ 6:00PM (Y02-309)
3. Presentation group II (Jun 8, 2013) 9:00AM ~ 6:00PM (Y02-309)

*장소: 2-309 (30명씩, 제1과학기술관 3층 멀티미디어실)
*Group 1: 20100398818 ~ 2008047526 (20명)
*Group II: 2008060527 ~ 2010058851 (19명)
<table>
<thead>
<tr>
<th>Date</th>
<th>Schedule</th>
<th>비고</th>
<th>장소</th>
<th>시간</th>
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<tr>
<td>Mar 5, 2013</td>
<td>Introduction</td>
<td></td>
<td>Y25-0413</td>
<td>14:00 ~ 16:00</td>
</tr>
<tr>
<td>Mar 12, 2013</td>
<td>논문발표의 예</td>
<td>송영하 박사</td>
<td>Y25-0413</td>
<td>14:00 ~ 16:00</td>
</tr>
<tr>
<td>Mar 19, 2013</td>
<td>논문 주제 선정 및 발표에 대한 소개 (1 minutes presentation 및 졸업논문)</td>
<td></td>
<td>Y25-0413</td>
<td>14:00 ~ 16:00</td>
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<tr>
<td>Mar 26, 2013</td>
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<tr>
<td>Apr 2, 2013</td>
<td>학술DB검색의 개요 및 방법</td>
<td>ERICA학술정보관제제서비스템운석안과장님</td>
<td>제4공학관 2층 PC 4실 (30명정원+)</td>
<td>14:00 ~ 16:00</td>
</tr>
<tr>
<td>Apr 9, 2013</td>
<td>서지관리프로그램의 활용</td>
<td>ERICA학술정보관제제서비스템운석안과장님</td>
<td>제4공학관 2층 PC 4실 (30명정원+)</td>
<td>14:00 ~ 16:00</td>
</tr>
<tr>
<td>Apr 16, 2013</td>
<td>1 minute presentation</td>
<td></td>
<td>Y25-0413</td>
<td>14:00 ~ 16:00</td>
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<tr>
<td>Apr 23, 2013</td>
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<tr>
<td>May 28, 2013</td>
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<tr>
<td>Jun 1, 2013</td>
<td>졸업논문발표 1</td>
<td></td>
<td>Y02-0309</td>
<td>09:00 ~ 18:00</td>
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<tr>
<td>Jun 8, 2013</td>
<td>졸업논문발표 2</td>
<td></td>
<td>Y02-0309</td>
<td>09:00 ~ 18:00</td>
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## 2013년 대학원전공세미나 스케줄

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<th>Speaker</th>
<th>Invited by</th>
<th>시간</th>
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<tr>
<td>Mar 5, 2013</td>
<td>조익훈 교수님, 서울시립대</td>
<td>채영규 교수님</td>
<td>16:30 ~ 17:30</td>
</tr>
<tr>
<td>Mar 12, 2013</td>
<td>Prof. Won Kyoung-Jae (원경제), Univ. of Penn.</td>
<td>채영규 교수님</td>
<td>16:30 ~ 17:30</td>
</tr>
<tr>
<td>Mar 19, 2013</td>
<td>허원기 교수님, 서울대 생명과학부</td>
<td>안성훈 교수</td>
<td>16:30 ~ 17:30</td>
</tr>
<tr>
<td>Mar 26, 2013</td>
<td>남태규 교수님, 한양대 약대</td>
<td>정일엽 교수님</td>
<td>16:30 ~ 17:30</td>
</tr>
<tr>
<td>Apr 2, 2013</td>
<td>민동원 박사님, 툱젠</td>
<td>정일엽 교수님</td>
<td>16:30 ~ 17:30</td>
</tr>
<tr>
<td>Apr 9, 2013</td>
<td>김태수 교수님, 이화여자대학교</td>
<td>채영규 교수님</td>
<td>16:30 ~ 17:30</td>
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<tr>
<td>Apr 16, 2013</td>
<td>Mid-term exam</td>
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<tr>
<td>Apr 23, 2013</td>
<td>신동미 교수님, 서울대 가정대</td>
<td>이영식 교수님</td>
<td>16:30 ~ 17:30</td>
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<tr>
<td>Apr 30, 2013</td>
<td>추현아 박사님, KIST 뇌의약연구단</td>
<td>서혜명 교수님</td>
<td>16:30 ~ 17:30</td>
</tr>
<tr>
<td>May 7, 2013</td>
<td>지홍식 박사님, 삼성바이오에피스 부장</td>
<td>채영규 교수님</td>
<td>16:30 ~ 17:30</td>
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<tr>
<td>May 14, 2013</td>
<td>바이오그린 담당 과장님, 농촌진흥청</td>
<td>이영식 교수님</td>
<td>16:30 ~ 17:30</td>
</tr>
<tr>
<td>May 21, 2013</td>
<td>김형표 교수님, 연세대</td>
<td>채영규 교수님</td>
<td>16:30 ~ 17:30</td>
</tr>
<tr>
<td>May 28, 2013</td>
<td>김낙성 교수님, 전남대 의대</td>
<td>서혜명 교수님</td>
<td>16:30 ~ 17:30</td>
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<tr>
<td>Jun 4, 2013</td>
<td>대학원생 발표</td>
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<td>16:30 ~ 17:30</td>
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<tr>
<td>Jun 11, 2013</td>
<td>Final exam</td>
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*논문주제 선정

a. 연구참여 학생: 현재 진행하고 있는 연구주제에 대한 내용 발표.
b. 비연구참여 학생: 각 교수님 연구주제 중에서 원하는 주제를 선택 후 발표.
c. 분자생명과학부 교수님 (총 8분) 1분에 5명의 학생이 배정.
d. 논문 선택 후 각 지도교수님께 개별적으로 연락, 논문발표자료 준비.
e. 1학기에 선택하고 발표한 주제로 2학기에 논문 작성 및 제출 (생명과학연구론2).
생명과학연구론2
<table>
<thead>
<tr>
<th>교과목개요</th>
<th>생명과학은 과학분야에서 가장 신속히 발전하는 분야로 새로운 개념 및 신 기술이 날로 개발되고 따라서 엄청난 분량의 정보가 축적되고 있다. 효율적인 연구를 수행하기 위하여 종합적인 정보로 부터 필요한 정보의 취사 선택 및 문헌에 의한 보고서, 논문 작성은 필수적이며, 본 강좌를 통해 이러한 문제해결의 실마리를 터득하도록 한다.</th>
</tr>
</thead>
<tbody>
<tr>
<td>수업목표</td>
<td>본 수업을 통해서 분자생명과학과 관련된 논문을 분석하는 방법과 작성하는 방법을 터득한다.</td>
</tr>
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</table>
연구결과 프리젠테이션 (1학기)

연구결과 졸업논문작성 (2학기)
졸업논문작성

(Abstract: 영어, Others: 영어 또는 한국어)
졸업논문제출 11월 넷째주
졸업논문예시
| 평가   | 1. 출석, 20%
|       | 2. 졸업논문제출, 20%
|       | 3. Quiz (paraphrasing) 2~3회, 60% |
논문주제선택
이영식
Lee, Young Seek (Ph.D.)
생명정보분석연구실
Bioinformatics Lab.

채영규
Chai, Young Gyu (Ph.D.)
분자유전학연구실
Molecular Genetics Lab.

김효준
Kim, Hyo Joon (Ph.D.)
분자생물학연구실
Molecular Immunology Lab.

정일엽
Il Yup Chung (Ph.D.)
분자생물학연구실
Molecular Biology Lab.

황승용
Hwang, Seung Yong (Ph.D.)
통합유전체연구실
Integrated Genomics Lab.

비나스 버트
Binas, Bert (Ph.D.)
줄기세포연구실
Stem Cell Lab.

서혜명
Seo, Hyemyung (Ph.D.)
세포신경과학연구실
Cellular Neuroscience Lab.

안성훈
Ahn, Seong-Hoon (Ph.D.)
분자세포생물학연구실
Molecular Cell Biology Lab.
이영식 교수님
1. Gene imprinting의 예측 방법
2. Gene imprinting의 실험적 확인 방법
3. Tribalist stem cell
4. Posttranslational Modification code
5. Histone code
6. Genomic reprogramming
7. X inactivation
채영규 교수님
1. Linking cell signaling and the epigenetic machinery
2. Putting epigenome comparison into practice
3. Epigenetic modifications and human disease
4. Epigenetic modifications as therapeutic targets
5. Epigenetic modifications in pluripotent and differentiated cells
김효준 교수님
1. Lipolysis & Obesity
2. Macrophages & Obesity
3. Obesity & Insulin resistance
4. Beige adipose tissue
5. Hepatic lipid metabolism in non-alcoholic fatty liver disease
6. Recent targets for obesity drug development (비교분석)
7. Vascular Endothelial Growth Factor B 와 Fibroblast Growth Factor 21
8. Recent targets for obesity drug development (비교분석)
9. tyrosine-protein kinase 2 와 noncanonical IkB kinases IKK-α and TANK-binding kinase 1 (TBK1)
정일엽 교수님
1. S100A proteins
2. Eosinophils
3. FOG-1
4. C/EBP
5. Inflammasomes
6. Innate lymphoid cells2
황승용 교수님
1. Gene expression profiling studies in cancer
2. SNP genotyping using DNA chip
3. DNA methylation studies using DNA microarray
4. MicroRNA expression profiling
5. Toxicogenomics study
6. Biosensors for Lab-on-a-chip
7. Next generation sequencing techniques
서해명 교수님
1. Neuroinflammation in neurodegenerative diseases
2. Developments in HIV Neuropathogenesis
3. Polymorphism study for Alzheimer’s disease
4. Neurotrophic factors and addiction
5. Aging and memory
6. Protein trafficking in neurons
7. Stress in brain function
안성훈 교수
1. Telomeric silencing and histone modification
2. Lifespan regulation by histone modification.
3. Transcription regulation by SAGA
4. Cell cycle progression and histone modification.
5. Histone crosstalk in the regulation of transcription.
6. RNA polymerase II CTD phosphorylation in regulation of transcription.
Bert Binas 교수님
1. Cellular roles of the transcription factor Oct4
2. Identification of Oct4 target genes
3. The Oct4-Cdx2 antagonism as a potential lineage switch
4. The Nanog-Gata6 antagonism as a potential lineage switch
5. Lineage-specific regulation of the Oct4 gene
6. Comparative epigenetics of inner cell mass-type stem cell lines
7. Environmental regulation of inner cell mass stem cell identity
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<td>Sep 10, 2013</td>
<td>Matching Exercise</td>
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<td>Sep 17, 2013</td>
<td>Topic, Aspect, Introduction, and Viewpoint</td>
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<td>분자생명과학과 실험실 소개</td>
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<td>학회 (휴강)</td>
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<td>Oct 15, 2013</td>
<td>논문 예시 #1</td>
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<td>Oct 29, 2013</td>
<td>Quiz #1</td>
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<td>Nov 12, 2013</td>
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<td>Dec 10, 2013</td>
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<td>Dec 17, 2013</td>
<td>Quiz #3</td>
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Writing
• SCI
• Impact Factor
• PubMed
The Science Citation Index (SCI)
The **Science Citation Index (SCI)** is a citation index originally produced by the **Institute for Scientific Information (ISI)** and created by **Eugene Garfield** in 1960, which is now owned by **Thomson Reuters**. The larger version (**Science Citation Index Expanded**) covers more than 6,500 notable and significant journals, across 150 disciplines, from 1900 to the present. These are alternately described as the world’s leading journals of science and technology, because of a rigorous selection process. The index is made available online through the **Web of Science** database, a part of the **Web of Knowledge** collection of databases. (There are also CD and printed editions, covering a smaller number of journals). This database allows a researcher to identify which later articles have cited any particular earlier article, or cited the articles of any particular author, or determine which articles have been cited most frequently. Thomson Reuters also markets several subsets of this database, termed "Specialty Citation Indexes", such as the **Neuroscience Citation Index** and the **Chemistry Citation Index**.

**See also**

- Arts and Humanities Citation Index, which covers 1130 journals, beginning with 1975.
- Impact factor
- List of academic databases and search engines
- Social Sciences Citation Index, which covers 1700 journals, beginning with 1956.

**References**

**External links**

- Introduction to SCI
- Master journal list
INTELLECTUAL PROPERTY & SCIENCE

JOURNAL SEARCH

THOMSON REUTERS MASTER JOURNAL LIST - JOURNAL LIST

Total journals: 17240

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

*A* Journals 1-10 (of 1942)

A & U - ARCHITECTURE AND URBANISM
Monthly ISSN: 0388-9180
A & U PUBL CO LTD, 39-8 YUSHIMA2-CHOME BUNKYO-KU, TOKYO, JAPAN, 113
Coverage

A ROCHA PORTUGAL OBSERVATORY REPORT
Annual ISSN: ****
ROCHA TRUST, CRUZINHA, APT 41, MEXILHOEIRA GRANDE, PORTUGAL, 8501-903
Coverage

AAA-ARBEITEN AUS ANGLISTIK UND AMERIKANISTIK
Semiannual ISSN: 0171-8410
GUNTER Narr VERLAG, DISCHINGERWEG 5, TUBINGEN, GERMANY, D 72070
Coverage

AAAS ANNUAL MEETING AND SCIENCE INNOVATION EXPOSITION
Annual ISSN: ****
AMER ASSOC ADVANCEMENT SCIENCE, 1200 NEW YORK AVE, NW, WASHINGTON, USA, DC, 20005
Coverage

AACL BIOFLUX
Bimonthly ISSN: 1844-6143
BIOFLUX SRL, 54 CEAHALU ST, CLUJ-NAPOCA, ROMANIA, 400488
Coverage

THIS DAY IN SCIENCE
— AUGUST 31
In 1803, Lewis and Clark start their expedition to the west by leaving Pittsburgh, Pennsylvania at 11 o clock in the morning.
JOURNAL SEARCH

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SCIENCE CITATION INDEX

SEARCH
Find a specific journal by title, title words, or ISSN

VIEW JOURNAL LIST
View a list of all journals

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View a list of all journals covered in a specific category

VIEW JOURNAL CHANGES
View a list of all journal coverage changes

JOURNAL CITATION REPORTS®
2013 Release
SOURCE: Thomson Reuters Journal Citation Reports

AVAILABLE NOW!

THIS DAY IN SCIENCE
AUGUST 31
In 1803, Lewis and Clark start their expedition to the west by leaving Pittsburgh, Pennsylvania at 11 o clock in the morning.
practice # 1

Search the SCI journal, Cell
Impact Factor
Impact factor

The impact factor, often abbreviated IF, is a measure reflecting the average number of citations to recent articles published in science and social science journals. It is frequently used as a proxy for the relative importance of a journal within its field, with journals with higher impact factors deemed to be more important than those with lower ones. The impact factor was devised by Eugene Garfield, the founder of the Institute for Scientific Information (ISI), now part of Thomson Reuters. Impact factors are calculated yearly for those journals that are indexed in Thomson Reuters Journal Citation Reports.

Calculation

In a given year, the impact factor of a journal is the average number of citations received per paper published in that journal during the two preceding years. For example, if a journal has an impact factor of 3 in 2008, then its papers published in 2006 and 2007 received 3 citations each on average in 2008. The 2008 impact factor of a journal would be calculated as follows:

\[ A = \text{the number of times articles published in 2006 and 2007 were cited by indexed journals during 2008.} \]
\[ B = \text{the total number of "citable items" published by that journal in 2006 and 2007. ("Citable items" are usually articles, reviews, proceedings, or notes; not editorials or Letters-to-the-Editor.)} \]

\[ \text{2008 impact factor} = \frac{A}{B}. \]

(Note that 2008 impact factors are actually published in 2009; they cannot be calculated until all of the 2008 publications have been processed by the indexing agency.)

New journals, which are indexed from their first published issue, will receive an impact factor after two years of publication.
JOURNAL CITATION REPORTS®
2013 Release
AVAILABLE NOW!

SOURCE: Thomson Reuters 2012 Citation Data

Journal Citation Reports® (JCR®) offers a systematic, objective means to critically evaluate the world’s leading journals, with quantifiable, statistical information based on citation data. By compiling articles’ cited references, JCR helps to measure research influence and impact at the journal and category levels, and shows the relationship between citing and cited journals.

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The recognized authority for evaluating journals, JCR presents quantitative data that supports a systematic, objective review of the world’s leading journals. Using a combination of impact and influence metrics, and millions of cited and citing journal data points that comprise the complete journal citation network of Web of Science, JCR provides the context to understand a journal’s true place in the world of scholarly literature.

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- Sort subject category data by clearly defined fields: total cites, median impact factor, aggregate impact factor, aggregate immediacy index, aggregated cited half-life, number of journals in category, number of articles in category.
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Go to the journal citation reports product page.

Retrieve JCR record information with Thomson Reuters article match retrieval service.
<table>
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<tr>
<th>Mark</th>
<th>Rank</th>
<th>Abbreviated Journal Title (Linked to Journal Information)</th>
<th>ISSN</th>
<th>JCR Data</th>
<th>Eigenfactor® Metrics</th>
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<td>1</td>
<td>NATURE</td>
<td>0028-0836</td>
<td>Total Cites 36.280 5-Year Impact Factor 36.235 Immediacy Index 9.690 Articles 841 Cited Half-life 9.4</td>
<td>Eigenfactor® Score 1.65658 Article Influence® Score 20.353</td>
</tr>
</tbody>
</table>
Search the Impact factor of the journal, Cell
분포

SCI Journal

IF (0 ~ 1)
IF (1 ~ 3)
IF (3 ~ 10)
IF (11 ~ 20)
IF (20 이상)
PubMed
PubMed

(미국립보건의료원에서 제공하는 과학 논문 검색 사이트)

• Enter Keyword (ex. histone)
• Enter Author Name
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Early-stage epigenetic modification during somatic cell reprogramming by Parp1 and Tet2.


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Abstract

Somatic cells can be reprogrammed into induced pluripotent stem cells (iPSCs) by using the pluripotency factors Oct4, Sox2, Klf4 and c-Myc (together referred to as OSKM). iPSC reprogramming erases somatic epigenetic signatures as typified by DNA methylation or histone modification at silent pluripotency loci and establishes alternative epigenetic marks of embryonic stem cells (ESCs). Here we describe an early and essential stage of somatic cell reprogramming, preceding the induction of transcription at endogenous pluripotency loci such as Nanog and Esrrb. By day 4 after transduction with OSKM, two epigenetic modification factors necessary for iPSC generation, namely poly(ADP-ribose) polymerase-1 (Parp1) and ten-eleven translocation-2 (Tet2), are recruited to the Nanog and Esrrb loci. These epigenetic modification factors seem to have complementary roles in the establishment of early epigenetic marks during somatic cell reprogramming: Parp1 functions in the regulation of 5-methylcytosine (5mC) modification, whereas Tet2 is essential for the early generation of 5-hydroxymethylcytosine (5hmC) by the oxidation of 5mC (refs 3,4). Although 5hmC has been proposed to serve primarily as an intermediate in 5mC demethylation to cytosine in certain contexts, our data, and also studies of Tet2-mutant human tumour cells, argue in favour of a role for 5hmC as an epigenetic mark distinct from 5mC. Consistent with this, Parp1 and Tet2 are each needed for the early establishment of histone modifications that typify an activated chromatin state at pluripotency loci, whereas Parp1 induction further promotes accessibility to the Oct4 reprogramming factor. These findings suggest that Parp1 and Tet2 contribute to an epigenetic program that directs subsequent transcriptional induction at pluripotency loci during somatic cell reprogramming.

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LETTER

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Somatic cells can be reprogrammed into induced pluripotent stem cells (iPSCs) by using the pluripotency factors Oct4, Sox2, Klf4 and c-Myc (together referred to as OSKM)1. iPSC reprogramming erases somatic epigenetic signatures—as typified by DNA methylation or histone modification at silent pluripotency loci—and establishes alternative epigenetic marks of embryonic stem cells (ESCs)2, 3. Here we describe an early and essential stage of somatic cell reprogramming, preceding the induction of transcription at endogenous pluripotency loci such as Nanog and Esrrb. By day 4 after transduction with OSKM, two epigenetic modification factors necessary for iPSC generation, namely poly(ADP-ribose) polymerase-1 (Parp1) and ten-eleven translocation-2 (Tet2), are recruited to the Nanog and Esrrb loci. These epigenetic modification factors seem to have complementary roles in the establishment of early epigenetic marks during somatic cell reprogramming: Parp1 functions in the regulation of 5-methylcytosine (5mC) modification, whereas Tet2 is essential for the early generation of 5-hydroxymethylcytosine (5hmC). Parp1 expression is induced in a majority of nuclei in comparison with 4 control vector-transduced MEFs (WT d4-CONT-MEFs; Fig. 1g). The increased accumulation of Parp1 and 5hmC during reprogramming was not paralleled by a corresponding accumulation of cleaved Parp1, a marker of apoptosis (Supplementary Fig. 3a).

In view of the effect of Parp1 overexpression in somatic cell reprogramming, we next tested the impact of Parp1 deficiency. Reprogramming of iPSCs was suppressed in the context of...
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