Claudin 7 Polyclonal Antibody
Catalog Number 34-9100

Details

| Size | 100 µg |
| Host/Isotope | Rabbit / IgG |
| Class | Polyclonal |
| Type | Antibody |
| Immunogen | Synthetic peptide derived from the C-terminal region of the human claudin-7 protein. |
| Conjugate | Unconjugated |
| Form | Liquid |
| Concentration | 0.25 mg/mL |
| Purification | Antigen affinity chromatography |
| Storage buffer | PBS, pH 7.4 |
| Contains | 0.1% sodium azide |
| Storage Conditions | -20°C |

Species Reactivity

| Species reactivity | Dog, Mouse |
| Published species | Dog, Pig, Rat, Fish, Plant, Human, Mouse, Not Applicable |

Tested Applications

<table>
<thead>
<tr>
<th>Assay</th>
<th>Dilution *</th>
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<tbody>
<tr>
<td>ELISA (ELISA)</td>
<td>Assay-dependent</td>
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<tr>
<td>Immunohistochemistry (IHC)</td>
<td>Assay-dependent</td>
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<tr>
<td>Western Blot (WB)</td>
<td>1.5 - 3 µg/mL</td>
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<tr>
<td>Immunocytochemistry (ICC/IF)</td>
<td>2-3 µg/mL</td>
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Published Applications

<table>
<thead>
<tr>
<th>Assay</th>
<th>See publications below</th>
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<tbody>
<tr>
<td>Immunohistochemistry (IHC)</td>
<td>15</td>
</tr>
<tr>
<td>Western Blot (WB)</td>
<td>23</td>
</tr>
<tr>
<td>Flow Cytometry (Flow)</td>
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<tr>
<td>Immunocytochemistry (ICC/IF)</td>
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<td>Immunohistochemistry (Paraffin) (IHC (P))</td>
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<td>Miscellaneous PubMed (Misc)</td>
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<tr>
<td>Immunohistochemistry (Frozen) (IHC (F))</td>
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Suggested working dilutions are given as a guide only. It is recommended that the user titrate the product for use in their own experiment using appropriate negative and positive controls.

Background/Target Information

This gene encodes a member of the claudin family. Claudins are integral membrane proteins and components of tight junction strands. Tight junction strands serve as a physical barrier to prevent solutes and water from passing freely through the paracellular space between epithelial or endothelial cell sheets, and also play critical roles in maintaining cell polarity and signal transductions. Differential expression of this gene has been observed in different types of malignancies, including breast cancer, ovarian cancer, hepatocellular carcinomas, urinary tumors, prostate cancer, lung cancer, head and neck cancers, thyroid carcinomas, etc. Alternatively spliced transcript variants encoding different isoforms have been found.

Claudin 7 Antibody (34-9100) in ICC/IF

Immunofluorescence analysis of Claudin-7 was done on 90% confluent log phase Caco2 cells. The cells were fixed with 4% paraformaldehyde for 10 minutes, permeabilized with 0.1% Triton™ X-100 for 10 minutes, and blocked with 1% BSA for 1 hour at room temperature. The cells were labeled with Claudin-7 Rabbit Polyclonal Antibody (Product # 34-9100) at 2 µg/mL in 0.1% BSA and incubated for 3 hours at room temperature and then labeled with Goat anti-Rabbit IgG (H+L) Superclonal™ Secondary Antibody, Alexa Fluor® 488 conjugate (Product # A27034) at a dilution of 1:2000 for 45 minutes at room temperature (Panel a: green). Nuclei (Panel b: blue) were stained with SlowFade® Gold Antifade Mountant with DAPI (Product # S36938). F-actin (Panel c: red) was stained with Alexa Fluor® 555 Rhodamine Phalloidin (Product # R415, 1:300). Panel d is a merged image showing cell junction localization. Panel e is a no primary antibody control. The images were captured at 60X magnification.

Claudin 7 Antibody (34-9100) in ICC/IF

Antibody specificity was demonstrated by detection of differential basal expression of the target across tissue tested owing to their inherent genetic constitution. Relative expression of CLDN7 was observed in Mouse Placenta in comparison to Mouse Heart using Anti-Claudin 1 Polyclonal Antibody (Product # 34-9100) in Western Blot. (doi: 10.1371/journal.pone.0022119). (RE)

Claudin 7 Antibody (34-9100) in ICC/IF

Immunofluorescent staining of MDCK cells using Rabbit anti-Claudin-7. Image courtesy of Dr. Saraswati Sukumar, Johns Hopkins School of Medicine, Baltimore, MD. (Product # 34-9100)

Claudin 7 Antibody (34-9100) in WB

Western blot was performed using Anti-Claudin 7 Polyclonal Antibody (Product # 34-9100) and a 22 KDa band corresponding to CLDN7 was observed in HT-29, HCT 116, Caco-2 and Mouse Placenta and not in Panc-1 and Mouse Heart which are reported to be less expressing for CLDN7. Membrane enriched extracts (30 µg lysate) of HT-29 (Lane 1), HCT 116 (Lanue 2), Caco-2 (Lane 3), Panc-1 (Lane 4) and tissue extracts (30 µg lysate) of Mouse Heart (Lane 5) and Mouse Placenta (Lane 6) were electrophoresed using Novex® NuPAGE® 12 % Bis-Tris gel (Product # NP0342BOX). Resolved proteins were then transferred onto a nitrocellulose membrane (Product # IB23001) by iBlot® 2 Dry Blotting System (Product # IB21001). The blot was probed with the primary antibody (1.5 µg/ml) and detected by chemiluminescence with Goat anti-Rabbit IgG (H+L) Superclonal™ Recombinant Secondary Antibody, HRP (Product # A27036, 1:4000 dilution) using the iBright FL 1000 (Product # A32752). Chemiluminescent detection was performed using Novex® ECL Chemiluminescent Substrate Reagent Kit (Product # WP20005).
Claudin 7 Antibody (34-9100) in WB

Western blot analysis was performed on whole cell extracts (30 µg lysate) of HT 29 (Lane 1), HCT 116 (lane 2), and NIH /3T3 (Lane 3). The blots were probed with Anti-Claudin-7 Rabbit Polyclonal Antibody (Product # 34-9100, 2 µg/mL) and detected by chemiluminescence Goat Anti-Rabbit IgG Secondary Antibody, HRP conjugate (Product # G-21234, 1:5000 dilution). A17 kDa band corresponding to Claudin- 7 was observed across cell lines tested. Known quantity of protein samples were electrophoresed using Novex® NuPAGE® 12 % Bis-Tris gel (Product # NP0342BOX), XCell SureLock™ Electrophoresis System (Product # EI0002) and Novex® Sharp Pre-Stained Protein Standard (Product # LC5800). Resolved proteins were then transferred onto a nitrocellulose membrane by iBlot® 2 Dry Blotting System (Product # IB21001). The membrane was probed with the relevant primary and secondary Antibody following blocking with 5 % skimmed milk. Chemiluminescent detection was performed using Pierce™ ECL Western Blotting Substrate (Product # 32106).
## 15 Immunohistochemistry References

<table>
<thead>
<tr>
<th>Species / Dilution</th>
<th>Summary</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Human / 1:100</strong></td>
<td>34-9100 was used in Immunohistochemistry-immunofluorescence to show that substitutes produced with VF and at least 10% of DF showed sufficient mechanical resistance to withstand surgeon manipulation and high functionality, which may improve long-term patients' quality of life, representing a great future alternative to current treatments.</td>
</tr>
<tr>
<td><strong>Rat / Not Cited</strong></td>
<td>Microorganisms (Oct 2019; 7:) &quot;Probiotics Prevents Sensitization to Oral Antigen and Subsequent Increases in Intestinal Tight Junction Permeability in Juvenile-Young Adult Rats.&quot; Author(s): Tulyeu J, Kumagai H, Jimbo E, Watanabe S, Yokoyama K, Cui L, Osaka H, Miemo N, Yamagata T PubMed Article URL: <a href="http://dx.doi.org/10.3390/microorganisms7100463">http://dx.doi.org/10.3390/microorganisms7100463</a></td>
</tr>
<tr>
<td><strong>Human / Not Cited</strong></td>
<td>34-9100 was used in Immunohistochemistry to explore the mechanism responsible for changes in the morphology and function of the intestinal barrier using a rat model of food allergy, focusing on the contribution of intestinal microbiota.</td>
</tr>
<tr>
<td><strong>Human / 1:100</strong></td>
<td>Scientific reports (Dec 2022; 12:) &quot;Engineered human organ-specific urethra as a functional substitute.&quot; Author(s): Caneparo C, Chabaud S, Fradette J, Bolduc S PubMed Article URL: <a href="http://dx.doi.org/10.1038/s41598-022-25311-1">http://dx.doi.org/10.1038/s41598-022-25311-1</a></td>
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<tr>
<td><strong>Human / Not Cited</strong></td>
<td>34-9100 was used in Immunohistochemistry to explore the role of claudin-7 in cancer progression.</td>
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<tr>
<td><strong>Human / Not Cited</strong></td>
<td>34-9100 was used in Immunohistochemistry to investigate the role of phytoestrogens on mammary structure development and milk production in mammary epithelial cells.</td>
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<tr>
<td><strong>Mouse / Not Cited</strong></td>
<td>Journal of cell science (Nov 2012; 125: 5005) &quot;Cingulin is dispensable for epithelial barrier function and tight junction structure, and plays a role in the control of claudin-2 expression and response to duodenal mucosa injury.&quot; Author(s): Guillermot L, Schneider Y, Brun P, Castagliuolo I, Pizzuti D, Martines D, Jond L, Bongiovanni M, Citi S PubMed Article URL: <a href="http://dx.doi.org/10.1242/jcs.101261">http://dx.doi.org/10.1242/jcs.101261</a></td>
</tr>
<tr>
<td><strong>Human / 1:100</strong></td>
<td>The journal of histochemistry and cytochemistry : official journal of the Histochemistry Society (Dec 2013; 61: 880) &quot;Claudin 1 expression characterizes human uterine cervical reserve cells.&quot; Author(s): Zinner B, Gyongyosi B, Babarzci E, Kiss A, Sobel G PubMed Article URL: <a href="http://dx.doi.org/10.1038/s0022155413501324">http://dx.doi.org/10.1038/s0022155413501324</a></td>
</tr>
</tbody>
</table>
34-9100 was used in immunohistochemistry to determine the distribution of claudins-7 and -8 in rabbit Henle’s loops and collecting ducts.

**Species / Dilution**

<table>
<thead>
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<tr>
<td>Mouse</td>
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**Summary**

"EpCAM contributes to formation of functional tight junction in the intestinal epithelium by recruiting claudin proteins."


PubMed Article URL: http://dx.doi.org/10.1016/j.ydbio.2012.07.005

34-9100 was used in western blot to report that commensal colonization induces intestinal barrier function maturation by promoting claudin 3 expression.

**Mouse / 1/500**

"Probiotic bacteria induce maturation of intestinal claudin 3 expression and barrier function."

Author(s): Patel RM, Myers LS, Kurundkar AR, Maheshwari A, Nusrat A, Lin PW

PubMed Article URL: http://dx.doi.org/10.1016/j.apath.2011.10.025

**Human / 1 µg/ml**


"Inducible expression of Snail selectively increases paracellular ion permeability and differentially modulates tight junction proteins."

Author(s): Carrozzino F, Soulie P, Huber D, Mensi N, Orli C, Cano A, Feurille E, Montesano R

PubMed Article URL: http://dx.doi.org/10.1152/ajpcell.00175.2005

**Species / Dilution**

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<tbody>
<tr>
<td>Human</td>
<td>1:150</td>
</tr>
</tbody>
</table>

**Summary**

"Enhanced immunohistochemical resolution of claudin proteins in glycolmethacrylate-embedded tissue biopsies."

Author(s): Collins JE, Kirk A, Campbell SK, Mason J, Wilson SJ

PubMed Article URL: http://dx.doi.org/10.1007/978-1-61779-185-7_27

34-9100 was used in Immunohistochemistry to show that early life nutrition influences intestinal maturation and gut health in later life, using a mouse model of postnatal growth restriction (PNGR).

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<tbody>
<tr>
<td>Human</td>
<td>1:50</td>
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</tbody>
</table>

**Summary**

"Organic osmolytes increase expression of specific tight junction proteins in skin and alter barrier function in keratinocytes."

Author(s): El-Chami C, Foster AR, Johnson C, Clausen RP, Cornwell P, Haslam IS, Steward MC, Watson REB, Young HS, O’Neill CA

PubMed Article URL: http://dx.doi.org/10.1111/bjd.19162

Clinical cancer research : an official journal of the American Association for Cancer Research (Feb 2010; 16: 876)

"Heterogeneity for stem cell-related markers according to tumor subtype and histologic stage in breast cancer."

Author(s): Park SY, Lee HE, Li H, Shiptsins M, Gelman R, Poliyak K

PubMed Article URL: http://dx.doi.org/10.1158/1078-0432.CCR-09-1532

"Loss of claudins-1 and -7 and expression of claudins-3 and -4 correlate with prognostic variables in prostatic adenocarcinomas."

Author(s): Sheehan GM, Kallakury BV, Sheehan CE, Fisher HA, Kaufman RP, Ross JS

PubMed Article URL: http://dx.doi.org/10.1016/j.humpath.2006.11.007

34-9100 was used in Immunohistochemistry to show that early life nutrition influences intestinal maturation and gut health in later life, using a mouse model of postnatal growth restriction (PNGR).

**Human / 1/500**

The British journal of dermatology (Mar 2021; 184: 482)

"Early life nutrition influences susceptibility to chronic inflammatory colitis in later life."

Author(s): Ley D, Desseye JL, Guoyere V, Plit S, Tims S, Renes I, Mischke M, Gottrand F

PubMed Article URL: http://dx.doi.org/10.1038/s41598-019-54308-6

**Human / Not Cited**

**Species / Dilution**

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PubMed Article URL: http://dx.doi.org/10.1016/j.ydbio.2012.07.005

23 Western Blot References

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PubMed Article URL: http://dx.doi.org/10.1152/ajpcell.00175.2005


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34-9100 was used in Western Blotting to indicate that the downregulation of lipolysis-stimulated lipoprotein receptor promotes cell invasion of human endometrial cancer via claudin-1 mediation of matrix metalloproteinases.

**Human / Not Cited**


Gastroenterology (Jan 2010; 138: 255) "Claudin-1 has tumor suppressive activity and is a direct target of RUNX3 in gastric epithelial cells." Author(s): Chang TL,Itto K,Ko TK,Liu Q,Saito-Lellez M,Yeoh KQ,Fukamachi H,Itto Y PubMed Article URL http://dx.doi.org/10.1053/j.gastro.2009.08.044

**Plant / Not Cited**

34-9100 was used in Immunocytochemistry-immunofluorescence to establish claudin-4 knockout clones in MDCK II cells and investigate the permeability property of claudin-4.

**Mouse / Not Cited**

34-9100 was used in Western Blotting to determine whether vascular permeability plays an important role in regulating adiponectin action.

**Mouse / 1:500**


**Human / 1:500**


**Mouse / Not Cited**

34-9100 was used in Western Blotting to determine whether ZIKV can open the paracellular pathway of STB cells which have been seen to be resistant to ZIKV infections.

**Mouse / 1:500**


**Human / 1:500**

Environment international (Nov 2019; 132: ) "In vitro and in vivo effects of a mycotoxin, deoxynivalenol, and a trace metal, cadmium, alone or in a mixture on the intestinal barrier function in vitro and in vivo." Author(s): Luo S,Terciolo C,Bracarense APFL,Payros D,Pinton P,Oswald IP PubMed Article URL http://dx.doi.org/10.1053/j.gastro.2019.105082

**Mouse / 1:2000**


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American journal of physiology. Cell physiology (Jun 2005; 288: C1231)
"Knockdown of occludin expression leads to diverse phenotypic alterations in epithelial cells."
Author(s): Yu AS, McCarthy KM, Francis SA, McCormack JM, Lai J, Rogers RA, Lynch RD, Schneberger EE
PubMed Article URL:http://dx.doi.org/10.1152/ajpcell.00581.2004

Mouse / 1:1000
American journal of physiology. Renal physiology (Jun 2004; 286: F1063)
"Expression of claudin-7 and -8 along the mouse nephron."
Author(s): Li WY, Huey CL, Yu AS
PubMed Article URL:http://dx.doi.org/10.1152/ajprenal.00384.2003

34-9100 was used in Western Blotting to demonstrate the increased intestinal permeability and morphological defects in intercellular junctions in Muc2 knockout mice.

Molecular membrane biology (Jan 2008; 25: 1)
"Inducible overexpression of cingulin in stably transfected MDCK cells does not affect tight junction organization and gene expression."
Author(s): Paschoud S, Citi S
PubMed Article URL:http://dx.doi.org/10.1080/09687680701474009

"Mucin-2 knockout is a model of intercellular junction defects, mitochondrial damage and ATP depletion in the intestinal epithelium."
Author(s): Borisova MA, Achasova KM, Morozova KN, Andreyeva EN, Litvinova EA, Ogienko AA, Morozova MV, Berkaeva MB, Kiseleva E, Kozezhnikova EN
PubMed Article URL:http://dx.doi.org/10.1038/s41598-020-78141-4

"Tumor Necrosis Factor Alpha Effects on the Porcine Intestinal Epithelial Barrier Include Enhanced Expression of TNF (TNF) in a newly established non-transformed jejunal enterocyte model, namely IPEC-J2 monolayers."

34-9100 was used in Western Blotting to study the effects of cingulin overexpression

"Mucin-2 knockout is a model of intercellular junction defects, mitochondrial damage and ATP depletion in the intestinal epithelium."
Author(s): Guillemot L, Schneider Y, Brun P, Castagliuolo I, Pizzuti D, Martines D, Jond L, Bongiovanni M, Citi S
PubMed Article URL:http://dx.doi.org/10.1242/jcs.101261

"Connexins, E-cadherin, Claudin-7 and -catenin transiently form junctional nexuses during post-natal mammary gland development."
Author(s): Dianati E, Poiraud J, Weber-Ouellette A, Plante I
PubMed Article URL:http://dx.doi.org/10.1172/JCI88428

"Matriptase-mediated cleavage of EpCAM destabilizes claudins and dysregulates intestinal epithelial homeostasis."
Author(s): Wu CJ, Feng X, Lu M, Morimura S, Udey MC
PubMed Article URL:http://dx.doi.org/10.1080/21688370.2018.1540904

"Matriptase-mediated cleavage of EpCAM destabilizes claudins and dysregulates intestinal epithelial homeostasis."
Author(s): Chen H, Lu R, Zhang YG, Sun J
PubMed Article URL:http://dx.doi.org/10.1172/JCI101261

"Knockdown of occludin expression leads to diverse phenotypic alterations in epithelial cells."
Author(s): Yu AS, McCarthy KM, Francis SA, McCormack JM, Lai J, Rogers RA, Lynch RD, Schneberger EE
PubMed Article URL:http://dx.doi.org/10.1152/ajpcell.00581.2004

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PubMed Article URL:http://dx.doi.org/10.1038/s41598-020-78141-4

"Tumor Necrosis Factor Alpha Effects on the Porcine Intestinal Epithelial Barrier Include Enhanced Expression of TNF Receptor 1."
Author(s): Droessler L, Cornelius V, Markov AG, Amasheh S
PubMed Article URL:http://dx.doi.org/10.3390/ijms22168746


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34-9100 was used in Western Blotting to conclude that re-expression of APC restores cell-cell adhesion gene and post-transcriptional regulatory programs leading to p120-catenin isoform switching and associated changes in cell-cell adhesion.

Human / 1:100
Molecular biology of the cell (Jan 2021; 32: 120)
"APC regulation of ESRP1 and p120-catenin isoforms in colorectal cancer cells."
Author(s): Faux MC, King LE, Kane SR, Love C, Sieber OM, Burgess AW
PubMed Article URL: http://dx.doi.org/10.1091/mbc.E20-05-0321

Human / 1:1000
Cells (May 2022; 11: )
"MarvelD3 Is Upregulated in Ulcerative Colitis and Has Attenuating Effects during Colitis Indirectly Stabilizing the Intestinal Barrier."
PubMed Article URL: http://dx.doi.org/10.1399/cells11091541

34-9100 was used in Western Blotting to indicate that HDAC inhibitors suppress the proliferation, migration and invasiveness of HNSCC by downregulating the p63-mediated tight junction molecules JAM-A and claudin-1, and inducing p63 or p21-mediated growth arrest.

Human / 1:1000
Oncology reports (Apr 2021; 45: )
"HDAC inhibitors suppress the proliferation, migration and invasiveness of human head and neck squamous cell carcinoma cells via p63mediated tight junction molecules and p21mediated growth arrest."
PubMed Article URL: http://dx.doi.org/10.3892/or.2021.7997

1 Flow Cytometry References
Species / Dilution
Summary

34-9100 was used in flow cytometry to ascertain how claudin-6 is associated with MMP-2 activation and cell invasiveness

Human / 1:100
Experimental cell research (Jan 2017; 350: 226)
"Claudin-6 enhances cell invasiveness through claudin-1 in AGS human adenocarcinoma gastric cancer cells."
Author(s): Torres-Martinez AC, Gallardo-Vera JF, Lara-Holguín AN, Montañe LF, Rendón-Huerta EP
PubMed Article URL: http://dx.doi.org/10.1016/j.yexcr.2016.11.025

6 Immunocytochemistry References
Species / Dilution
Summary

Mouse / 1:5,000
American journal of physiology. Renal physiology (Jun 2004; 286: F1063)
"Expression of claudin-7 and -8 along the mouse nephron."
Author(s): Li WY, Huey CL, Yu AS
PubMed Article URL: http://dx.doi.org/10.1152/ajpregu.00384.2003

34-9100 was used in immunocytochemistry to characterize cell lines that mimic the characteristics of the proximal tubule

Not Applicable / Not Cited
Toxicology in vitro : an international journal published in association with BIBRA (Sep 2006; 20: 942)
"Epithelial barrier characteristics and expression of cell adhesion molecules in proximal tube-derived cell lines commonly used for in vitro toxicity studies."
Author(s): Proszialek WC, Edwards JR, Lamar PC, Smith CS
PubMed Article URL: http://dx.doi.org/10.1016/j.tiv.2005.11.006

34-9100 was used in Immunocytochemistry-immunofluorescence to establish claudin-4 knockout clones in MDCK II cells and investigate the permeability property of claudin-4.

Mouse / Not Cited
PloS one (Oct 2017; 12: )
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Author(s): Tokuda S, Hirai T, Furuse M
PubMed Article URL: http://dx.doi.org/10.1371/journal.pone.0182521

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