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CONTACT INFORMATION

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EDUCATION

Ph.D., Graduate Institute of Life Sciences, National Defense Medical Center, Taipei, Taiwan, 2005.09~2009.07

M.A., Department of Biology and Anatomy, National Defense Medical Center, Taipei, Taiwan, 2003.09~2005.07

B.A, Department of Life Sciences, National Chung Hsing University, Taichung, Taiwan, 1999.09~2003.07

EMPLOYMENT HISTORY

Postdoctoral researcher, Department of Pharmacology, National Defense Medical Center, Taipei, Taiwan, 2009.09~2010.08

Postdoctoral researcher, Department of Medical Research and Education, Taipei City Hospital, Taipei, Taiwan, 2010.09~2011.12

Postdoctoral researcher, Institute of Biomedical Sciences, Academia Sinica, Taipei, Taiwan, 2012. 01~2020.01

Adjunct assistant professor, Department of Biology and Anatomy, National Defense Medical Center, Taipei, Taiwan, 2015. 01~2019.12

Assistant professor, School of Medicine, I-Shou University, Kaohsiung, Taiwan, 2020. 02~now

PUBLICATIONS (* Corresponding author)

Journals

1. **Cai BH**, Chen JY, Lu MH, Chang LT, Lin HC, Chang YM, Chao CF* Functional four-base A/T gap core sequence CATTAG of P53 response elements specifically bound tetrameric P53 differently than two-base A/T gap core sequence CATG bound both dimeric and tetrameric P53. (2009) *Nucleic Acids Res*, 37, 1984-1990. (IF=14.9)
2. **Cai BH**, Hsu PC, Hsin IL, Chao CF, Lu MH, Lin HC, Chiou SH, Tao PL, Chen JY* p53 acts as a co-repressor to regulate keratin 14 expression during epidermal cell differentiation. (2012) *PLoS One*, 7, e41742. (IF=3.7)
3. **Cai BH**, Chao CF, Lu MH, Lin HC, Chen JY* A half-site of the p53-binding site on the keratin 14 promoter is specifically activated by p63. (2012) *J Biochem*, 152, 99-110. (IF=2.7)
4. **Cai BH**, Chao CF, Lin HC, Huang HY, Kannagi R, Chen JY* A/T gap tolerance in the core sequence and flanking sequence requirements of non-canonical p53 response elements. (2016) *J Biochem*, 159(6):563-72. (IF=2.7)
5. Chao CC, Wu PH, Huang HC, Chung HY, Chou YC, **Cai BH***, Kannagi R* GCNT2 induction upon epithelial-mesenchymal transition in colon cancer. (2017) *FEBS Lett*. Jul;591(13):1902-1917. (IF=3.5) (corresponding author)
6. **Cai BH***, Wu PH, Chou CK, Huang HC, Chao CC, Chung HY, Lee HY, Chen JY, Kannagi R* Synergistic activation of the NEU4 promoter by p73 and AP2 in colon cancer cells. (2019) *Sci Rep*. Jan 30;9(1):950. (IF=4.6) (First and corresponding author)
7. Huang HC, Chao CC, Wu PH, Chung HY, Lee HY, Suen CS, Hwang MJ, **Cai BH***, Kannagi R* Epigenetic silencing of the synthesis of immunosuppressive Siglec ligand glycans by NF-κB/EZH2/YY1 axis in early-stage colon cancers. (2019) *Biochim Biophys Acta Gene Regul Mech*. 1862:173-183 (IF=4.7) (corresponding author)
8. **Cai, BH**, Chao CF, Lee HY, Huang HC, Kannagi R*, Chen JY * p53 Family Structure and Function in Non-Canonical Response Element Binding and Activation. (2019) *Int. J. Mol. Sci.*, 20, 3681. (IF= 5.6)
9. **Cai, BH**, Lee HY, Chou CK, Wu PH, Huang HC, Chao CC, Chung HY, Kannagi, R*. Endogenous retrovirus long terminal repeat promoter of B3GALT5 is highly expressed in human embryonic stem cells and under-controlled by lamin A-NFYA and SIRT1-STAT3 signaling cascades. (2020) *Cells* 9(1), 177 (IF=6.0)
10. Huang HC, **Cai, BH**, Suen CS, Lee HY, Hwang MJ, Liu FT, Kannagi, R*. BGN/TLR4/NF-κB Mediates Epigenetic Silencing of Immunosuppressive Siglec Ligands in Colon Cancer Cells. (2020) *Cells* 9(2), 397 (IF=6.0)
11. **Cai BH***, Bai ZY, Lien CF, Yu SJ, Lu RY, Wu MH, Wu WC, Chen CC*, Hsu YC*. NAMPT Inhibitor and P73 Activator Represses P53 R175H Mutated HNSCC Cell Proliferation in a Synergistic Manner. (2022) *Biomolecules* 12(3):438 (IF=5.5) (First and corresponding author)
12. **Cai BH***, Hsu YC, Yeh FY, Lin YR, Lu RY, Yu SJ, Shaw JF, Wu MH, Tsai YZ, Lin YC, Bai ZY,

Shih YC, Hsu YC, Liao RY, Kuo WH, Hsu CT, Lien CF*, Chen CC*. P63 and P73 Activation in Cancers with p53 Mutation. (2022) *Biomedicines* 10(7):1490. (IF=4.7) (First and corresponding author)

13. Wu MH†, Lu RY†, Yu SJ†, Tsai YZ, Lin YC, Bai ZY, Liao RY, Hsu YC*, Chen CC*, **Cai BH***. PTC124 rescues non-sense mutation of two tumor-suppressor genes NOTCH1 and FAT1 to repress HNSCC cells proliferation. (2022) Biomedicines 10 (11), 2948. (IF=4.7) (corresponding author)
14. **Cai BH ***, Sung YT, Chen CC, Shaw JF *, Hsin IL *. The Competition of Yin and Yang: Exploring the Role of Wild-Type and Mutant p53 in Tumor Progression. Biomedicines. 2023; 11 (4):1192. (IF=4.7) (First and corresponding author)
15. Chen CC, Liao RY, Yeh FY, Lin YR, Wu TY, Pastor AE, Zul DD, Hsu YC, Wu KY, Liu KF, Kannagi R, Chen JY, **Cai BH ***. A Simple and Affordable Method to Create Nonsense Mutation Clones of p53 for Studying the Premature Termination Codon Readthrough Activity of PTC124. Biomedicines. 2023; 11 (5):1310. (IF=4.7) (corresponding author)

Books

1. R Kannagi*, K Sakuma, **BH Cai**, SY Yu. Tumor-Associated Glycans and Their Functional Roles in the Multistep Process of Human Cancer Progression. (2015) *Sugar Chains. Springer*, pp. 139-158.
2. R Kannagi*, **BH Cai**, HC Huang, K Sakuma. Regulation of cell surface glycan expression in cancer stem cells. (2016) *Cancer Metastasis and Cancer Stem Cell/Niche, Bentham Science Publisher eBook Series*, pp. 24-60.
3. R Kannagi*, **BH Cai**, HC Huang, CC Chao, K Sakuma. Gangliosides and Tumors. (2018) *Methods Mol Biol, 1804:143-171*.

INVITED REVIEW

1. *Nucleic Acids Research* (IF=14.9) (Five articles were reviewed on 2011-07-01, 2011-08-22, 2012-07-26, 2012-08-07, 2013-07-12)
2. *Antioxidants* (IF=7.0) (Article was reviewed on 2022-09-02)
3. *Life Sciences* (IF=6.1) (Article was reviewed on 2023-06-22)
4. *Cells* (IF=6.0) (Three articles were reviewed on 2022-08-12, 2022-12-03, 2023-07-13)
5. *International Journal of Molecular Sciences* (IF= 5.6) (Seven articles were reviewed on 2022-04-14, 2022-07-05, 2022-08-13, 2022-12-18, 2023-05-01, 2023-05-20, 2023-08-15)
6. *Biomolecules* (IF=5.5) (Four articles were reviewed on 2022-03-17, 2022-10-04, 2023-02-08, 2023-07-13)
7. *Cancers* (IF=5.2) (Four articles were reviewed on 2022-08-17, 2023-01-25, 2023-04-01, 2023-04-26)
8. *Biomedicines* (IF=4.7) (Four articles were reviewed on 2022-05-14, 2022-11-05, 2023-02-22,

2023-06-13)

9. *Glycobiology* (IF=4.3) (Six articles were reviewed on 2013-12-11, 2014-09-09, 2014-09-30, 2015-01-05, 2015-02-09, 2015-06-22)
10. *Oncology Reports* (IF= 4.2) (Article was reviewed on 2020-02-12)
11. *Frontiers in Physiology* (IF=4.0) (Article was reviewed on 2022-04-03)
12. *Journal of Clinical Medicine* (IF=3.9) (Article was reviewed on 2023-06-05)
13. *Acta Biochimica et Biophysica Sinica* (IF= 3.7) (Article was reviewed on 2017-12-20)
14. *Molecular Medicine Reports* (IF= 3.4) (Article was reviewed on 2019-10-02)
15. *Life* (IF=3.2) (Two articles were reviewed on 2020-02-07, 2022-06-05)
16. *Current Issues in Molecular Biology* (IF=3.1) (Article was reviewed on 2023-08-01)
17. *Oncology Letters* (IF= 2.9) (Two articles were reviewed on 2020-02-24, 2020-03-04)
18. *Cancer Control* (IF=2.6) (Article was reviewed on 2018-02-05)
19. *Clinical Medicine Insights: Oncology* (IF=2.2) (Article was reviewed on 2023-04-17)
20. *Cellular Physiology and Biochemistry* (SJR=2.563) (Article was reviewed on 2018-08-07)

GUEST EDITOR

1. Special Issue in *Biomedicines*:

Roles of p53 Family in Cancers and Their Therapeutic Approaches
Deadline for manuscript submissions: 31 August 2023

2. Special Issue in *JoVE*:

Cancer Research collection (start form 2024 spring)

HONOR

1. The 24th joint annual conference of biomedical sciences, The ROC Society of Cell and Molecular Biology Outstanding Award of poster (2009) (10% pass rate)
2. The 9th postgraduate Thesis Conference, Graduate Institute of Life Sciences, National Defense Medical Center (2009) (5th honor)
3. The 1st Session of Academia Sinica Regular Postdoctoral Research Fellowships, Academia Sinica (2013) (37% pass rate)

CONFERENCE

1. 2013 IBMS 1st Annual Research Day (at IBMS, Taipei City, Sep 25)

Poster presentation: Stemness-related glycans are under control of microRNAs.

2. 2014 Glycoforum Annual Retreat (at Great Roots, New Taipei City, April 24-25)

Oral presentation: Transcriptional and post-transcriptional regulation of genes controlling glycan expression in human embryonic stem cell and cancer stem cells.

3. 2016 Glycoforum Annual Retreat (at Great Roots, New Taipei City, April 11-13)

Oral presentation: AP2 and p73 synergistically induce NEU4 to down-regulate polysialic acid NCAM in colon cancer cells

4. 2017 The 17th International p53 Workshop (at Biopolis, Singapore, July 8-12)

Poster presentation: p73 induces NEU4 and FUCA1 to down-regulate sialylation and fucosylation in colon cancer cells

5. 2019 Canadian Glycomics Symposium (at Banff, Canada, May 15-17)

Poster presentation: p73 induces Neu4 and Fuca1 to modulate cancer-associated glycan expression

6. 2021 Academic Poster Day (at E-Da hospital, Kaohsiung, Nov 26)

Poster presentation: CC885 rescues non-sense mutation of two tumor-suppressor genes NOTCH1 and FAT1 to repress HNSCC cells proliferation.

7. 2022 The 36th joint annual conference of biomedical sciences (Online Conference, Mar 24)

Poster presentation: NAMPT Inhibitor and P73 Activator Have Synergic Effects to Repress P53 R175H Mutated HNSCC Cells proliferation.

BRIEF SUMMARY OF PROFESSIONAL BACKGROUND

A Ph.D. Life Science were got in 2009 with **more than 10 years experience of p53 family tumor suppressor gene research**. Post-doctoral research also performed **stem cell and cancer stem cells** research.

1. p53 family research (nine first author papers and two corresponding author paper)

I focused on p53 and p63 regulation of epidermal differentiation and tried to identify non-canonical p53 response elements (*PLoS One. 7(7):e41742. 2012;* first author *and J Biochem. Jul;152(1):99-110. 2012;* first author). The protein structure of p53 (mono-di-tetramer) is also a key issue to determinate function of p53 transactivation function with difference between canonical and non-canonical p53 response elements (*Nucleic Acids Res.Apr;37(6):1984-90. 2009;* first author and *J Biochem. Jun;159(6):563-72. 2016;* first author). I focused on the p73 participate in colon cancer cell glycosylation to regulate the sialylation and fucosylation of cancer associated glycans (*Sci Rep. Jan 30;9(1):950. 2019;* first author). An invited review article with the topic “Roles of p53 family structure and function in non-canonical response element binding and activation” is published. (*International journal of molecular sciences 20 (15), 3681. 2019;* first author) Recently, I focused on the p73 activator drugs treatment on p53 mutants in cancers and publish one research paper and one review paper. (*Biomolecules. 12(3):438. 2022;* first author *and Biomedicines. 10(7) :1490. 2022;* first author) Also, I studied the anticancer effect of PTC124 in p53, NOTCH1 and FAT1 nonsense mutation cancer cells (*Biomedicines.10(11):2948. 2022;* corresponding author*; Biomedicines.; 11 (5):1310. 2023;* corresponding author). I also wrote an editor article about the role of wild-type and mutant p53 in tumor progression (*Biomedicines.11 (4):1192. 2023;* first author)

2. Stem cell and cancer stem cells research (one first author paper, two corresponding author papers and one second author paper)

Transcriptional and post-transcriptional of glycan-related genes in stem cell and cancer stem cells. Verification of the microRNA targeting sites on glycosylation related genes in both human embryonic stem cell and cancer stem cell (*FEBS Lett. Jul;591(13):1902-1917. 2017;* corresponding author). Signal transduction of inflammation on glycan-related genes in colon cancer cells (*Biochim Biophys Acta Gene Regul Mech. 1862:173-183. 2019;* corresponding author and *Cells 9 (2), 397. 2020;* second author). Signal transduction of differentiation upon glycan-related genes in embryonic stem cells (*Cells 9 (1), 177. 2020;* first author).