**Title Page**

**Reduced Function Variant in the BCRP/*ABCG2* Transporter**

**Increases Cadmium Accumulation and Cellular Injury**

**-- Supplemental Information --**

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***Supplemental Figure 1. mRNA Expression of DMT1, ZIP8 and ZIP14 in EV and BCRP WT Cells.*** Total RNA of EV and BCRP WT cells was isolated using RNAzol RT. The mRNA expression of DMT1, ZIP8/14 was quantified by qPCR assay using Sybr Green to detect amplified products. Ct values were converted to ΔΔCt by comparing to the reference gene 18S. Individual data are presented as mean ± SD (n= 4-6).

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***Supplemental Figure 2. Intracellular Hoechst 33342 Accumulation in EV, BCRP WT, and BCRP Q141K cells***. EV, BCRP WT and BCRP Q141K cells were treated with Hoechst 33342 (10 µM) for 30 min (*uptake period),* washed, and then incubated in fresh culture media for 60 min (*efflux period*). Intracellular fluorescence intensity of Hoechst 33342 was determined using a Cellometer. Individual data are presented as mean ± SD (n= 4). \* p < 0.05, compared to EV cells. † p < 0.05, compared to BCRP WT cells.

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***Supplemental Figure 3.* *Renal mRNA Expression of Bcrp, Mate1, Mdr1a/1b, Oct2, Dmt1, Zip8 and Zip14* *in WT and Bcrp KO mice.*** Total RNA was isolated from WT and Bcrp KO mice using RNAzol RT. The mRNA expression of Bcrp, Mate1, Mdr1a/1b, Oct2, Dmt1, Zip8/14 was quantified by qPCR assay using Sybr Green to detect amplified products. Ct values were converted to ΔΔCt by comparing to the reference gene Rpl13a. Data from each individual animal are presented as mean ± SD (n= 6-8).

**Supplementary Table 1. Human Primers Used for qPCR assay**

|  |  |  |
| --- | --- | --- |
|  | Forward (5’-3’) | Reverse (5’-3’) |
| HO-1 | CTGCTCAACATCCAGCTCTTTG | AGTGTAAGGACCCATCGGAGA |
| NQO1 | CAAAGGACCCTTCCGGAGTAA | ACTTGGAAGCCACAGAAATGC |
| MT-1A | CTCGAAATGGACCCCAACTG | CAGCCCTGGGCACACTTG |
| MT-2A | CCGACTCTAGCCGCCTCTT | GTGGAAGTCGCGTTCTTTACA |
| SOD-1  TRXR | TGATCTCACTCTCAGGAGACCAT  ACGGTGATGCTGGCAATAGG | ACCACAAGCCAAACGACTTC  CTGGGGTGAGCTCCACCTTA |
| DMT1 | GTTGCGGAGCTGGTAAGAATC | AGTGGCGAAGTACTCCTCTG |
| ZIP8  ZIP14  18S | CCCCACGAGTTAGGAGACTTT  GGGATACGGTCTCCTCTGTG  AAACGGCTACCACATCCAAG | GAACATGCCTCCAGCAAGTG  AAACCAAATGCCTCCGCGAT  CCTCCAATGGATCCTCGTTA |

**Supplementary Table 2. Mouse Primers Used for qPCR assay**

|  |  |  |
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|  | Forward (5’-3’) | Reverse (5’-3’) |
| Bcrp  Mate1  Mdr1a | GCGGAGGCAAGTCTTCGTTGC  GTTGGCCTTACGGAGAGGAC  TGCCCCACCAATTTGACACCCT | TCTCTCACTGTCAGGGTGCCCA  AATCCCACCCACCAAGACTAA  ATCCAGTGCGGCCTGAACCA |
| Mdr1b | GTGTTAAAGGGGCGATGGGCG | AGGCTTGGCCAGACAACAGCTT |
| Oct2  Dmt1 | ATTTCTGGTGCATACCGGAG  ACCGTCAGTATCCCAAGGTCCCA | CCAGGAACGAAGGGTTCAAT  AGACAGGAGATTGATGGCGATGGCT |
| Zip8 | CTAACGGACACATCCACTTCGA | CCCTTCAGACAGGTACATGAGCTT |
| Zip14 | AACGAGCACCATCACGGGCA | TGGAGCCCATCGCTCAGGGT |
| Rpl13a | CAAGAAAAAGCGGATGGTGG | TCCGTAACCTCAAGATCTGC |