Introduction
Nephrotic syndrome (NS), one of the most common kidney diseases in childhood, is characterized by massive proteinuria, hypoalbuminemia, edema and hyperlipidemia. Approximately 20% of the patients do not respond well to corticosteroid treatment and are classified as steroid-resistant NS (SRNS)\(^1\). \(\text{NPHS2}\) gene encodes for podocin that is an integral membrane protein of podocytes in the glomerular filtration barrier (Figure 1). Variants in the \(\text{NPHS2}\) gene are responsible for approximately 40% and 16% of familial and sporadic SRNS cases, respectively\(^2\).

Results and Discussion
The variants c.-164C>T and c.-268C>G showed - 49.1% and - 66.6% downregulation of luciferase (\(\text{Renilla sp}\)) gene expression, respectively, when compared to the wild-type \(\text{NPHS2}\) promoter, when transfected in podocytes (Figure 3). Our results corroborate with previous results from Di Duca et al (2006)\(^3\) study in which they also found that other promoter variants downregulated podocin.

Conclusions
Our results indicate that changes in podocin expression might interfere in the glomerular filtration slit and act in the background of the NS in patients carrying those variations.

Acknowledgement
CBMEG, FAPESP, CNPq and SAE

Figure 1. Glomerular filtration barrier. The glomerular filtration barrier complex. GBM = Glomerular barrier membrane. Adapted from Michaud et al (2007).

Figure 2. Illustration of the variants in the promoter region of \(\text{NPHS2}\) gene that were focus of the study.

Figure 3. Histogram results of relative luciferase activity of promoter \(\text{NPHS2}\) variants c.-164C>T and c.-268C>G. The LightSwitch™ promoter reporter vector (Active Motif Company) was transfected in immortalized podocytes by FuGENE® HD transfection reagent (Promega) with the following constructs: empty vector (mock), wild-type \(\text{NPHS2}\) (WT), and with the variants c.-164C>T and c.-268C>G. The data were analyzed and normalized using \(\text{NPHS2}\) WT (Student’s t-test, * = P<0.006 and # = P<0.0003).

Key words:
Nephrotic Syndrome, \(\text{NPHS2}\) gene, promoter variants

