

# Oxidative Stress as a Key Signaling Pathway in Placental Angiogenesis Changes in Preeclampsia

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## Abstract

**Background:** Preeclampsia (PE) is a disorder of pregnancy characterized by persistent high blood pressure and proteinuria, which is usually detected after 20 weeks gestation. The pathophysiological mechanisms that underlie the pathogenesis of PE are unclear; although oxidative stress (OS), abnormal placental angiogenesis and endothelial dysfunction are reported to be contributing factors. Despite the synergistic roles OS and placental angiogenesis play in the pathogenesis of PE, very few studies have attempted to integrate both factors in the pathogenesis, diagnosis and treatment of PE. OS also influences placental angiogenesis through redox-sensitive transcription factors; hence understanding how OS influences placental angiogenesis may elucidate potential therapeutic targets for correcting abnormal placental angiogenesis and function in PE. **Objective:** This article aims to present an insight into the role of OS and antigenic growth mediators (AGMs) in the pathogenesis of PE. It also provides evidence supporting the fact that OS may directly or indirectly influence placental angiogenesis changes in PE through the expression of a number of reactive oxygen species (ROS)-sensitive transcription factors. Additionally, it covers mainly diagnostic biomarkers of OS and AGMs along with existing biomarkers and treatment options currently available for PE.

**Conclusion:** Understanding the dynamics of preeclampsia will create a window of opportunity for predictive, preventive and personalized medicine (PPPM).

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## Biography

Dr. Wei Wang is affiliated to Department of Chemical Engineering, Curtin University. Dr. Wei Wang is currently providing services as Professor. Dr. Wei Wang has authored and co-authored multiple peer-reviewed scientific papers and presented works at many national and International conferences. Dr. Wei Wang contributions have acclaimed

recognition from honorable subject experts around the world. Dr. Wei Wang is actively associated with different societies and academies. Dr. Wei Wang academic career is decorated with several reputed awards and funding. Dr. Wei Wang research interests include Chemical Engineering.