the 3'OH of the growing strand and the 5' phosphate in front of it. During DNA replication, the leading strands are continuously synthesizing while the lagging strand is discontinuously synthesized (Sturm, 2011).

The Cell Cycle and Checkpoints controls

Cell cycle is needed for increases and producing two similar cells. In the eukaryotic cell DNA replication occur first then DNA synthesis following by mitosis to achieve the cell division. In order to allow the division to happen G1 phase , S phase , G2 phase and M phase are occurring respectively (Noguchi , 2006) . The cell cycle has regular events, each event is depending on the other one and they are the compliment.

Checkpoint is original stage of the cell cycle, when the cell cycle has damaged in the DNA or the cell (Noguchi, 2006). The cell requires 3 checkpoints, G1 checkpoint, intra-S phase checkpoint and G2 checkpoint. Morphogenesis checkpoint is active in the cytoskeleton and it stops the G2 and M phases in the cell cycle. The drugs that have a negative effect on the DNA synthesis or cell activity DNA cell cycle at G2/M transition in order to complete the DNA replication in the mitosis (Noguchi, 2006). The spindle checkpoint is arrests the M phase in the cell cycle ~~also spindle checkpoint occurs~~ at the point in metaphase where all the chromosomes should aligned at the mitotic plate. Genetic instability has the ability to cause many diseases in the cell such as cancer. Genome maintenance is known by studying checkpoints and it has direct effects on the cancer biology (Noguchi, 2006).

The cell supports by DNA maintenance checkpoints to avoid any damage in the DNA caused by intrinsic and extrinsic agents or any interference with the replication of DNA. As a result of this DNA maintenance is included with DNA damage checkpoint which is always active and DNA replication checkpoint to arrest cell cycle progression and DNA repairs (Noguchi, 2006).

Replication fork can stall over many different places such as, damaged templates, protein complexes bound to DNA. Replication checkpoint stops onset of mitosis by control proteins, also it establish the replication fork in addition, replication checkpoint has some activity on the human chromosomes.

Swi1 and Tof1 have places with a vast protein family that was initially characterized by metazoan Tim1 (Timeless) 11, 17, 20, 21.